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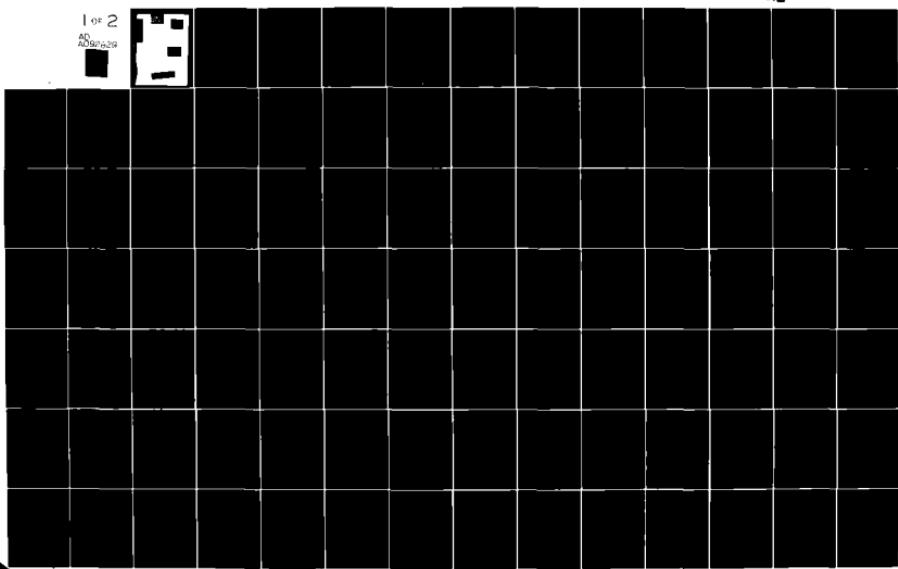
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AN EXPLORATION OF MULTIPLE CHANNEL EVALUATIONS IN ATTRIBUTIONS OF DECEPTION

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A THESIS SUBMITTED TO THE UNIVERSITY OF MISSISSIPPI IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS.

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ABSTRACT

AN EVALUATION OF MULTIPLE CHANNEL EVALUATIONS IN  
ATTRIBUTIONS OF DECEPTION

CHILDERS, CHARLES DAVID. B.A., Saint Leo College, 1978. M.A.,  
University of Mississippi, 1980. Thesis directed by Dr. John  
W. Windhauser.

People in all walks of life are faced everyday with situations in which they are confronted with deception and are often required to render personal evaluations of a person's veracity. Previous research has attempted to lend some insight into the characteristics of a deceptive communicator. Yet, many questions remain unanswered about the psychological characteristics of persons involved in deceptive communications as well as information on the ability of persons to detect deception.

Based on the questions posed in the literature, an experiment was designed to: a) examine the Machiavellian traits of deceivers and determine if significant differences would be found in the rates at which deceivers, who possessed varying levels of such traits, would be accurately judged in deceptive communications; and b) determine if previous or immediate training before evaluations would increase detection rates in which observers evaluated multiple channels for clues to deception. Moreover, this included determining the rates at which trained observers (polygraph examiners and journalism students) and untrained observers (non-journalism students) could accurately detect deception.

The experimental design used to investigate these questions

encompassed three major steps. First, a test designed to measure Machiavellian traits was administered randomly to persons selected as potential confederates. Subsequently, the test results were evaluated and five persons were chosen as deceivers based upon their scores. Groupings allowed for three categories of deceivers: high Mach, neutral Mach, and low Mach. Second, a videotape stimulus was prepared and presented to observers that showed two high Mach persons, two low Mach persons, and one neutral Mach person in deceptive and honest situations. Lastly, the videotape stimulus was presented to observers ( $N=289$ ) for evaluation.

The results of this study revealed that no major or significant differences are present between the performance of trained and untrained observers in detecting deception when they are allowed to use multiple channels as a basis of evaluation. Moreover, the results indicated that persons who possessed high Machiavellian characteristics were somewhat better deceivers than were those persons low in such traits.

An effort made to determine additional factors related to training and Machiavellianism that could account for various accuracy rates was also examined. Specifically, these were made with the following categories of observers: race, sex, age, student classification, student major, bias/no bias toward issues discussed and observer knowledge/not knowledgeable about the theory of detecting deception by evaluating nonverbal behavior. No significant correlation was found in the ability of observers in the above categories to detect deception.

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IN ATTRIBUTIONS OF DECEPTION  
BY  
CHARLES DAVID CHILDERS  
B.A., SAINT LEO COLLEGE, 1978

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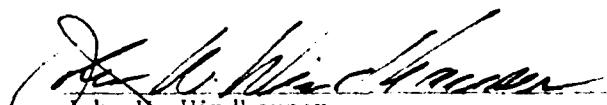
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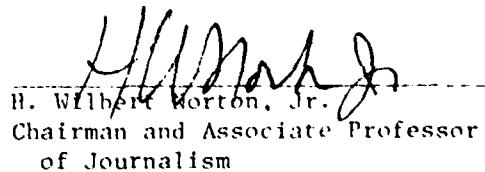
AN EXPLORATION OF MULTIPLE CHANNEL EVALUATIONS  
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## Chapter I

### INTRODUCTION

Since the beginning of man, as chronicled in biblical times, when Cain murdered his brother and subsequently lied to God when asked of his brother's whereabouts,<sup>1</sup> deception has co-existed with man. Everyone has been guilty of deception at one time or another,<sup>2</sup> and few of us can escape the impact that deception has had on our lives. Moreover, deception continues to flourish despite the social norm that "honesty is the best policy."

Consequently, people in all walks of life are faced everyday with situations in which they are confronted with deception and are often required to render personal evaluations of a person's veracity. To assist in such evaluations previous research has attempted to lend some insight into the characteristics of a deceptive communicator. Yet, many questions remain unanswered about the psychological characteristics of persons involved in deceptive communications as well as information on the ability of persons to detect deception.

Several specific areas exist which require additional research that

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<sup>1</sup> Genesis 4:9, The Holy Bible, King James Version.

<sup>2</sup> Judee K. Burgoon and Thomas Saine, The Unspoken Dialogue: An Introduction to Nonverbal Communication, (Boston: Houghton Mifflin Co., Publishers, 1978), p. 264.

should answer some questions posed by the current dearth of literature relating to deception. For example, the ability of polygraph examiners to detect deception solely by evaluating the verbal and nonverbal clues emitted by the deceiver has not been investigated in detail. However, previous research has documented polygraph examiners as proficient in evaluating the physiological responses of the deceiver during deceptive communications. Additionally, previous research has tended to separate various areas of deceptive clues into single channels (facial expressions, body language, or verbal clues) and has not allowed for evaluations of deception by using a combination of these channels.

Nor have investigators explored the ability of students of journalism to detect deception and honesty by evaluating facial expressions, body language and vocal clues (hereafter, multiple channels). This area exists despite the fact that journalism students are normally knowledgeable in communication theory and may be more adept at detecting deception than persons untrained in this area.

Therefore, this study will use a series of psychological tests and a prepared videotape to examine personality traits of deceivers in order to determine if persons judged high in Machiavellian traits are better at deceiving people than persons judged low in Machiavellian traits. Additionally, various persons will be tested to ascertain their ability to detect deception in an interview situation.

The principal objective of this thesis is to devise a series of systematic experiments that will lead to a better understanding of deceptive communications so that various persons will be better able to detect deception.

The remainder of this chapter summarizes situations in which deception occurs and encapsulates the history and theory of deception studies. Several deception studies are summarized and suggestions are made for practical application of these studies.

#### The Deception Environment and Its Implications

As pointed out, everyone has been guilty of deception and obviously deception may occur in almost any environment or situation. White lies, bluffing, hoaxes, put-ons, tall-tales and other forms of fabrication are but a few types of deception. It may occur within a myriad of circumstances and at any level in society. Whereas deception is somewhat expected in some environments, for example the police-suspect interrogation setting, it tends to surprise and shock the American people when it is not expected, as evidenced in the Watergate Affair. The following incident provides an example of a deceptive situation which allows for further examination of the implications of deceptive communications.

On April 13, 1980, President Jimmy Carter secretly approved a rescue mission that was intended to free the 53 American hostages who had been held in captivity in Iran since the take-over of the American Embassy in Tehran on November 4, 1979.<sup>3</sup> Immediately after President Carter's approval of the rescue mission, he met with various Congressional officials, as well as reporters, and consistently reaffirmed his position.

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<sup>3</sup>"They Sent In The Marines, But The Machinery Failed," Jackson (Miss.) Clarion-Ledger, April 27, 1980, p. 1.

"I have felt from the beginning," he said, "that the initiation of any military action or the causing of bloodshed would undoubtedly result in the death of the hostages."<sup>4</sup> However, at that very time he was aware of plans for such a military action. His deception was revealed during the early morning hours of April 25, 1980, when he was forced to give an account of the events that resulted in the deaths of eight U.S. servicemen.

Although the American public did not accuse the President of deception, primarily because a rescue mission would have to be planned and executed in secrecy, the elements of deception in this incident have vital importance to those who live in a democracy. Knapp and Comadena define deception as "the conscious alteration of information a person believes to be true in order to significantly change another's perception from what the deceiver thought they would be without the alteration."<sup>5</sup> Additional definitions of deception, although semantically different, appear to agree with the definition offered by Knapp and Comadena. For example, Podlesny and Raskin define deception as "an act or state designed to conceal or distort the truth for the purpose of misleading others."<sup>6</sup>

During the course of the described incident, it may be assumed that

<sup>4</sup> Ibid., p. 11.

<sup>5</sup> Mark L. Knapp and Mark E. Comadena, "Telling It Like It Isn't: A Review of Theory and Research on Deceptive Communications," *Human Communication Research*, Vol. 5, No. 3, Spring 1979, p. 271.

<sup>6</sup> John A. Podlesny and David C. Raskin, "Physiological Measures and the Detection of Deception," *Psychological Bulletin*, Vol. 84, No. 4, 1977, p. 782.

various persons had the opportunity to evaluate the President's verbal and nonverbal communication for deceptive clues. Yet for the most part, President Carter's initiation of the rescue mission, as well as his deceptive behavior, caught the American people by surprise. In short, what was called "the President's bluff to hide the truth,"<sup>7</sup> proved effective in concealing his true position.

Clearly, deception is evident among public officials. Yet, deception is probably more prevalent on the local or personal level. A husband lies to his wife, a doctor lies to his patient, a suspect lies to the police, and a public relations practitioner lies to his public. These are all examples of situations in which deception may occur. However, in almost any situation in which deception is present someone normally has the opportunity to evaluate the deceiver's verbal and nonverbal communication for clues to deception. But, does such an evaluation actually reveal clues that would alert a person to the presence of deception? Many studies suggest that it does.

#### Review of the Theory of Detecting Deception and Deception Studies

When deception occurs, behavior must be altered to present deception. This deceptive behavior is believed to be fundamentally different from normal or honest behavior.<sup>8</sup> This study will examine the specific verbal

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<sup>7</sup>They Sent In The Marines, But The Machinery Failed," Jackson (Miss.) Clarion-Ledger, April 27, 1980, p. 11.

<sup>8</sup>Judee K. Burgoon and Thomas Saine, The Unspoken Dialogue: An Introduction to Nonverbal Communication, (Boston: Houghton Mifflin Co., Publishers, 1978) p. 265.

and nonverbal behavior associated with deception and the ability of observers to detect it. Recent studies have attempted to determine how deceptive messages differ from normal or truthful messages, but for years various scholars have pointed out the need for evaluating nonverbal communication in detecting deception. Freud noted:

"He that has eyes to see and ears to hear may convince himself that no mortal can keep a secret. If his lips are silent, he chatters with his fingertips; betrayal oozes out of him at every pore."<sup>9</sup>

And, one of the papyrus vedas, in 900 B.C., offered the following suggestion for detecting deception and thereby determining the guilt of persons suspected of giving poison:

"A person who gives poison may be recognized. He does not answer questions, or they are evasive answers; he speaks nonsense, rubs the great toe along the ground, and shivers; his face is discolored; he rubs the roots of his hair with his fingers; and he tries by every means to leave the house...."<sup>10</sup>

In addition to analysis of a person's ability to detect nonverbal clues to deception, such as those offered by Freud and the papyrus vedas, this study will evaluate the impact of several variables on the ability of observers to accurately detect deception.

Apparently, most viewers of President Carter's deceptive behavior were unable to detect deception when confronted with it. Similarly,

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<sup>9</sup>Sigmund Freud, "Fragment of An Analysis of a Case of Hysteria," Collected Papers, Vol. 3 (New York: Basic Books, 1959) p. 94.

<sup>10</sup>Paul V. Trovillo, "A History of Lie Detection," Journal of Criminal Law and Criminology, Vol 29, 1939, p. 849.

most deception studies have concluded that observers untrained in detecting deception through the evaluation of verbal and nonverbal communication do not detect when they have been deceived. Knapp, et. al., noted that without the aid of mechanical equipment untrained observers accurately identify deceivers and truthtellers only about half or slightly more than half the time<sup>11</sup> (hereafter detecting deception at the chance level). Yet, a review of other deception studies, which are more recent than the findings offered by Knapp, suggests more promise for detecting deception without the aid of mechanical equipment.

For example, Bennett attempted to determine if a phenomena found in psychiatric settings and psychological institutions has a counterpart in other face-to-face situations, such as the news interview. The phenomena is the occurrence of rapid, short-termed facial expressions called micromomentary facial expressions (hereafter MME). Bennett said that psychiatrists have found that when patients in the clinical dyad attempt to hide information (or deceive), MME is present at a level which trained counselors may detect. Bennett suggested that the news setting is comparable to the psychological setting because of the stress present in each environment. Therefore, he hypothesized that journalists,

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<sup>11</sup>Mark L. Knapp, Roderick P. Hart and Harry S. Dennis, "An Exploration of Deception As A Communication Construct," unpublished manuscript, Purdue University, 1975, p. 16.

trained in evaluating MME for deceptive clues, could detect deception in the journalistic review. This hypothesis was supported.<sup>12</sup>

In a more practical setting for evaluating the ability of observers to detect deception, Mullaney organized a training program in detecting deception for police officers attending the North Central Texas Regional Police Academy. Mullaney indoctrinated the officers by using current literature on deceptive communication and subsequently tested the police officer's ability to accurately judge truth. He used videotapes and a series of interview situations that required interviewer and deceiver interaction. In one experiment he found that the officers correctly identified lies 78% of the time and correctly identified truth 67% of the time without the aid of mechanical equipment.<sup>13</sup>

In an effort to explore the subject of this thesis, Childers devised a pilot project aimed at measuring the ability of journalism students to detect deception by using the multiple channel mode. It was hypothesized that journalism students (journalism majors) and persons enrolled in journalism classes would identify deception at a higher than chance level. Ss (N=37) were exposed to 10 videotaped segments which portrayed deceptive and honest behavior. Subsequent analysis of the data indicated that 71% of the group accurately detected deception and honesty when

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<sup>12</sup> Roger E. Bennett, "A Study of Micromomentary Facial Expressions to Investigate the Detection of Deception in the Journalistic Interview," unpublished doctoral dissertation, University of Texas at Austin, 1978.

<sup>13</sup> Ross C. Mullaney, "Wanted! Performance Standards for Interrogations and Interviews," The Police Chief, June 1977, p. 77.

confronted with it. Therefore, the hypothesis was supported. An unusual implication of the study revealed that training had no major impact on the ability of journalism students to detect deception. The control group registered 72% correct responses, whereas the treatment group registered 69% correct responses. During the analysis of the data for this project, it was determined that more than 90% of the Ss were journalism majors and 56% of the group had heard of the concept of using nonverbal communication to detect deception. This may serve to explain the above chance level rating of detecting deception for this group as compared to other experiments in which researchers suggest observers can detect deception only at the chance level.<sup>14</sup>

#### Fallacies In The Detecting Deception Technique

Whereas the above studies have demonstrated findings and implications for studying deceptive communications, not all researchers agree with this concept. These researchers suggest certain factors that may circumvent the ability of observers to accurately detect deception by evaluating nonverbal communication.

Birdwhistell, for example, warned that no body position or movement, in and of itself, has a precise meaning.<sup>15</sup> For example, crossed arms do not always mean disapproval or rejection. He also contends that people

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<sup>14</sup>Childers, "Pilot Project - Deception Study," unpublished paper presented as a requirement for a graduate course in Journalism in "Problems in Public Opinion," University of Mississippi, May, 1980.

<sup>15</sup>Julius Fast, Body Language, (New York: M. Evans and Co, Publishers, 1970) p. 118.

concerned with body language must listen to both the body and spoken language.<sup>16</sup> In other words, spoken language alone will not always give full meaning of what a person is saying, nor will body language alone give full meaning.

Birdwhistell also suggested the concept of "moral looking time." Here, he suggests that one person can observe another's eyes, face, abdomen, legs and other parts of the body for only so long before tension is created.<sup>17</sup>

Shrank asserted that identifying meaning associated with nonverbal communication is virtually impossible.<sup>18</sup> Therefore, he suggests, that people should only become familiar with the principle theory of nonverbal communication. He offered examples as evidence of the complexity of discerning meaning based upon observing nonverbal communication:

"Two humans in a room during the course of an ordinary conversation exchange 200 to 5,000 bits of information per second and only a very small percentage of this is verbal ..... and students of body language estimate over 700,000 distinct gestures can be produced by a <sup>19</sup> combination of facial expressions .....

The implications of these suggestions must be considered in dealing with research in which the impact of various dependent variables on

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<sup>16</sup>Ibid, p. 119.

<sup>17</sup>Ibid.

<sup>18</sup>Ibid.

<sup>19</sup>Jeffrey Schrank, Deception Detection, (Boston: Beacon Press, Publishers, 1975) p. 36.

detecting deception has been questioned. Brandt, et. al., noted the effects of information overload on the ability of observers to detect deception from Ss with whom they were familiar.<sup>20</sup>

Other researchers have questioned the ability of polygraph examiners to accurately detect deception, claiming they have reported inflated results. Knapp, et. al., specifically questioned the accuracy rate reported by polygraphic and voice-print operators.<sup>21</sup>

Clearly, training in an experimental environment as an independent variable or long-term training, such as in the academic environment, may result in increased proficiency in the ability of observers to detect deception. Conversely, there are several factors that must be considered in deception studies. An overview of the characteristics of deceptive communications will help in extension understanding of deception studies and developing the parameters in which this study will be conducted.

#### Characteristics of Deceptive Communications

The aforementioned studies are evidence of research aimed at determining the ability of observers to detect deception when confronted with it. Other studies exist which serve to explain the characteristics of deceptive communications. These are relatively new.

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<sup>20</sup> David R. Brandt, Gerald R. Miller and John E. Hocking, "The Truth-Deception Attribution: Effects of Familiarity on the Ability of Observers to Detect Deception," Human Communication Research, Vol. 6, No. 2, Winter 1980, p. 107.

<sup>21</sup> Mark L. Knapp, Roderick P. Hart and Harry S. Dennis, "An Exploration of Deception as a Communication Construct," unpublished manuscript, Purdue University, 1975.

Perhaps this is because nonverbal communication, itself, is a relatively new area of research. The early 1960's show very few publications concerning nonverbal communication. These publications, for the most part, were limited to: Ruesch and Kees', Nonverbal Communication: Notes on the Visual Perceptions of Human Relations (1956); Edward Hall's, The Silent Language (1959) and a re-issue of Charles Darwin's, The Expression of Emotions in Man and Animals.<sup>22</sup> However, the 1970's saw an explosion of new literature dealing with nonverbal communication.<sup>23</sup> Among these were researchers who experimented with the concept of evaluating nonverbal communication to determine if deceptive leaks were present during deceptive communications. Ekman and Friesen were instrumental in some of the foremost experiments dealing with this concept.<sup>24</sup> Exline<sup>25</sup> and Mehrabian<sup>26</sup> also appear to have added much impetus to research on identifying deception.

These researchers offer several theories about detection of clues

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<sup>22</sup> Randall P. Harrison, Akiba A. Cohen, Wayne W. Crouch, B.K.L. Genova and Mark Steinberg, "The Nonverbal Communication Literature," The Journal of Communication, Vol. 22:4, December, 1972, p. 460.

<sup>23</sup> Ibid, p. 461.

<sup>24</sup> Paul Ekman and Wallace V. Friesen, "Nonverbal Leakage and Clues to Deception," Psychiatry, Vol. 32, 1969, pp. 88-106.

<sup>25</sup> R. Exline, "Visual Interaction: The Glance of Power and Preference," Nebraska Symposium on Motivation, 1971, ed. by James Cole (University of Nebraska Press, publishers).

<sup>26</sup> Albert Mehrabian, "Nonverbal Betrayal of Feelings," Journal of Experimental Research in Personality, Vol. 5, 1969, pp. 64-75.

that may be emitted during deceptive behavior; however, the dominant concept seems to be similar to the findings of Ekman and Friesen. They explained that when people attempt to suppress leakage and clues to deception, the ego is sensitive to signals that the conscious mind ignores. Therefore, when a person suspects that leakage of deceptive clues are occurring and detection of deception is imminent, he/she may attempt to salvage his/her performance either by curtailing it, or by attempting to simulate normal interaction.<sup>27</sup> Curtailing the interaction has the limited advantage of reducing the risk of failure through continued deception, but it also carries some additional disadvantages. By aborting the performance, one may actually insinuate deception or otherwise signal something has gone amiss. Simulation, on the other hand, carries its own risks because one must continue deception throughout the performance.<sup>28</sup>

Ekman and Friesen conducted several other experiments in an effort to determine which channel of communication (face or body) offers the best clues to deception. They found that the feet and legs were the best source of information about deceptive behavior, the hands ranked second, and the face was the least informative.<sup>29</sup> This seems to indicate that a person usually is more conscious of his/her face than of his/her

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<sup>27</sup> Paul Ekman and Wallace Friesen, "Nonverbal Leakage and Clues to Deception," Psychiatry, Vol. 32, 1969, pp. 88-106.

<sup>28</sup> Ibid.

<sup>29</sup> Ibid.

hands or feet and try to mask facial expressions more readily. More up-to-date research by Ekman and Friesen explored the multiple channel mode versus the single channel mode of detecting deception. It explored the correlation of judgments of effect in the multiple channel mode versus single channel evaluations. No correlation was found between any one single channel and the multiple channel mode. This suggests that it may be desirable to allow observers to view all channels to insure exposure to all deceptive stimuli.<sup>30</sup>

Researchers of the physiological method also evaluate all stimuli. They have used experiments to discover several different areas of the human body (for example; they have explored cardiovascular activity, blood pressure, finger pulse amplitude and blood volume, heart rate, skin conductance and resistance, respiratory measures and other muscle activity).

Recently, however, research has been aimed at determining the impact of several variables on physiological investigations of deception. Podlesny and Raskin suggest that accurate detection of deception may be contingent upon the deceptive context, or an evaluation of the total set of circumstances surrounding a person's possible deception.<sup>31</sup> They

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<sup>30</sup> Paul Ekman, Wallace V. Friesen, Maureen O'Sullivan and Klaus Scherer, "Relative Importance of Face, Body and Speech in Judgments of Personality and Affect," Journal of Personality and Social Psychology, Vol. 38, No. 2, 1980, pp. 270-277.

<sup>31</sup> John A. Podlesny and David C. Raskin, "Physiological Measures and the Detection of Deception," Psychological Bulletin, Vol. 84, No. 4, 1977, p. 782.

further suggest that stress, motivation (for lying), reward and punishment and threat are all factors in detecting deception.

A good amount of diversified literature exists on the subject of detecting deception. From many of these studies it appears that the theory of detecting deception is quite valid. A comprehensive literature search in the next chapter will present these conclusions in detail.

#### Practical Application of the Detecting Deception Method

Practical application of these findings is important. However, no simple, easy methodology will result in every person of average intelligence being able to use a simple technique to detect deception. Marston predicted that studies in detecting deception would result in a systematic technique that could be used by lawyers and executives.<sup>32</sup> To date, no such system has been developed. Conversely, other researchers, who offer a more pragmatic approach to detecting deception, suggest that detection should be taught simply as a method of increasing communication awareness.<sup>33</sup>

However, some professionals need to be more proficient in detecting deception than others. For example; police officers, journalists, personnel managers, and select executives should be more proficient at detecting deception.

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<sup>32</sup> William H. Morston, "Reaction-Time Symptoms of Deception," Journal of Experimental Psychology, 1920, p. 72.

<sup>33</sup> Jeffrey Schrank, Deception Detection, (Boston: Beacon Press, Publishers, 1975) p. 36.

If refined, this theory might prove helpful, especially for criminologists and journalists. For example, within the police-suspect interrogation setting, one or more persons are suspected of having committed certain crimes, or as a minimum, possessing information needed by the police. Therefore, it is the responsibility of the police to determine if that person is honest or deceptive. The police may not render an evaluation solely by evaluating communication. Yet, such an evaluation might prove helpful when coupled with other factors or when communication is the only clue to honesty or deception. The journalistic interview offers similar implications.

#### Summary

In this chapter, a brief overview of the history and theory of deceptive communications was discussed. Specifically, situations in which deception occurs, synopsis of several deception studies, findings relative to the ability of observers to detect deception, theory on clues to deceptive leaks and the practical application of the findings of current and future deception studies have been explored. These findings and related studies will be discussed in the next chapter.

In conclusion, the first chapter has generated several questions that will be explored more fully:

1. Will the multiple channel mode prove to be more effective than single channel evaluation by increasing the accuracy rate of judgments rendered by trained observers?
2. Will the multiple channel mode prove to be more effective than single channel evaluations by increasing the accuracy rate of

judgments rendered by untrained observers?

3. Will polygraph examiners, who have received some credit in the literature for being adept at detecting deception by evaluating nonverbal clues, prove to be adept at detecting deception by evaluating deceptive clues emitted through the multiple channel mode?

4. Will the accuracy rate of polygraphists serve as a standard and provide an instrument which may serve to measure the ability of other observers to detect deception?

5. And, do variables, such as Machiavellianism, sex and grade-point average have an impact on the ability of students to detect deception?

In chapter two these questions will be discussed in detail through a comprehensive search of existing literature.

## Chapter II

### REVIEW OF THE RELATED LITERATURE

Previous research in deceptive communications has dealt with several areas of deceptive communications. Some of these studies have focused on determining the ability of observers to detect deception merely by evaluating one specific area of the body for clues to deception. Other studies have attempted to determine the impact of several different variables, such as familiarity, on the ability of observers to detect deception. However, no investigation has been conducted that explored the accuracy of observers when they are allowed to evaluate a combination of facial expressions, body language, and vocal clues in deceptive exchanges. Nor has the ability of polygraph examiners to detect deception been explored when they are allowed to use this multiple channel method to judge the deceiver's honest and deceptive behavior.

#### An Overview of Human Communication Theory Relating to Detecting Deception

While it is impossible to cover all the related literature on human communication theory and nonverbal communication in this thesis, an overview of communication theory and nonverbal communication and their relationship to deceptive communication may provide a better understanding of the implications of studying deceptive communications. Harrison and Crouch suggest the verbal symbol, known only to modern man,

is simply the obvious apex of human communication.<sup>1</sup> Other subliminal areas of human communication include; gestures, pictures, graphics, facial expressions, body movements and postures, the use of clothing and artifacts and the use of time and space.

Nan Lin emphasized the importance of these subliminal areas of communication. He said that while verbal communication may play a major role in many social situations, nonverbal exchange is also pervasive and often complimentary to the verbal communication.<sup>2</sup> Similarly, Ruesch and Kees suggest that nonverbal communication is especially vital in situations where words fail completely.<sup>3</sup>

As stated, a review of human communication theory should provide a better understanding of this phenomena. But, Borden warns of the restrictions associated with studying the human communication process. He suggests that the subtleness of the human communication process can be shown in many ways and any study of human communication theory should result in the realization of the impossibility of knowing all there is to know about human communication.<sup>4</sup> Yet, he also suggests that an

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<sup>1</sup>Randall P. Harrison and Wayne W. Crouch, "Nonverbal Communication Theory and Research," in Communication and Behavior, Gerhard J. Hanneman and William J. McEwen (Eds.) (Reading Mass., Addison-Wesley Publishing Co., Publishers, 1975), p. 76.

<sup>2</sup>Nan Lin, The Study of Human Communication, (Indianapolis: Bobbs-Merrill Educational Publishing, Publishers, 1971), p. 67.

<sup>3</sup>Jurgen Ruesch and Weldon Kees, "Toward a Theory of Nonverbal Communication," in Dimensions of Communication, Lee Richardson, (ed.), (Englewood Cliffs, N.J.: Prentice-Hall Inc., Publishers, 1969) pp. 454-455.

<sup>4</sup>George A. Borden, An Introduction to Human Communication Theory, (Dubuque, Iowa: Wm. C. Brown Co, Publishers, 1971), p. 5.

examination of the schema of various communication theory models may result in a better understanding of the human communication process and its various implications, such as the way a person reacts to stimuli that he does not realize he is receiving or how he misinterprets the stimuli that he consciously receives.<sup>5</sup>

Berko, et. al., offered examples of two models that provide an understanding of the interactions that transpire during communication. He espoused upon the linear model of communication and pointed out that the model evolved from Greek and Roman rhetoricians.<sup>6</sup> He suggested the model is one-dimensional and the speaker may perform specific actions in a specific sequence during a speech and obtain a desired response from listeners. Berko also reviewed the interactional model which is exemplary of modern communications and also suggestive of the environment in which deception may occur. The interaction model expanded upon the linear model and suggests that communication is a two-way process. Within the realm of this model, the source encodes a message and sends it to the receiver through one or more sensory channels (verbal and/or nonverbal communication). The receiver then encodes feedback and sends the feedback to the source, making the communication process two-directional.<sup>7</sup>

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<sup>5</sup>Ibid.

<sup>6</sup>Roy M. Berko, Andrew D. Wolvin and Darlyn R. Wolvin, Communicating: a social and career focus, (Boston: Houghton Mifflin Co., Publishers, 1977) p. 15.

<sup>7</sup>Ibid, p. 17.

As stated, deception may occur within the two-directional, or interactional model of communication. And, deception may also occur within the one-dimensional or linear model of communication. President Nixon's deceptive behavior on national television during the Watergate Affair is an example of this situation.

Within the realm of the communication models discussed, people go through the course of routine activities transmitting data - or communicating - and it is left up to the decoder to interpret the true meaning of the encoder's message. Many examples of cross-cultural differences exist and could be provided that would support different meanings associated with different words. But such language, or cross-cultural differences are not the only barriers to understanding.<sup>8</sup>

Bennett pointed out that the written and spoken word could easily be misunderstood and he emphasized that the difficulties for understanding nonverbal communication are even more compounded.<sup>9</sup> Bennett's contention has been supported by other researchers. For example, Birdwhistell contends that in a normal conversation, the verbal component carries less than 35% of the social meaning of the situation and the nonverbal channel carries more than 65% of the meaning.<sup>10</sup> Similarly, Mehrabian suggests

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<sup>8</sup> Roger E. Bennett, "A Study of Micromomentary Facial Expressions to Investigate the Detection of Deception in the Journalistic Interview," unpublished doctoral dissertation, University of Texas at Austin, 1978.

<sup>9</sup> Ibid.

<sup>10</sup> Dr. H. Will Norton, Advanced Reporting Class Lecture, University of Mississippi, June 24, 1980.

that only 38% is communicated verbally while approximately 55% is communicated with facial expressions or body language.<sup>11</sup>

Haney noted that often people do not always correctly interpret the data presented to them. He called this process, when the sender and receiver miss each other with their meanings, "bypassing".<sup>12</sup> Berlo also noted that people assume their words mean exactly what they say.<sup>13</sup> He suggested that this is attributed to the fact that "only messages are transmittable, and meanings are not in the messages, they are message-users."<sup>14</sup>

The problem, then, with understanding meaning in the communicative process and to circumvent bypassing, appears to be that people may often receive more information than they are mentally capable of decoding and processing. Brandt, et. al., termed this information overload.<sup>15</sup> Yet, in the experimental dyad, when behavior and communication are properly coded and categorized, this problem may often be rectified. For example, Mehrabian coded the behaviors of deceptive communicators and found that

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<sup>11</sup>Ibid.

<sup>12</sup>William V. Haney, Communication and Interpersonal Relations, (Homewood, ILL.: Richard D. Irwin, Inc., Publishers, 1979), p. 285.

<sup>13</sup>David K. Berlo, The Process of Communication, (New York: Holt, Rinehart and Winston, Inc., Publishers, 1960), p. 275.

<sup>14</sup>Ibid.

<sup>15</sup>David R. Brandt, Gerald R. Miller and John E. Hocking, "The Truth-Deception Attribution: Effects of Familiarity on the Ability of Observers to Detect Deception," Human Communication Research, Vol. 6, No. 2, Winter 1980, p. 107.

they moved less, were less immediate in their body positions, spoke less and moved slowly with more speech errors than their truthful counterparts.<sup>16</sup> Similarly, McClintock and Hunt found that deception is accompanied by an increase in postural shifts, self-manipulations and gestures are prevalent over other communications.<sup>17</sup> More recent research by Ekman and Friesen may suggest that the multiple channel mode (evaluating a combination of facial expressions, body language, and vocal clues) is preferable over single mode judgments of personality and effect.<sup>18</sup> These findings suggest that nonverbal communication, when properly coded and subsequently evaluated in the experimental dyad, may result in increased understanding of meaning associated with the communicative process.

The literature thus far should be evidence that an understanding of the human communication theory and process could lead to a better understanding of deceptive communications. More specifically, some researchers purport an information overload that could circumvent evaluation of communication. Yet, other researchers seem to have

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<sup>16</sup> Albert Mehrabian, "Nonverbal Betrayal of Feeling," Journal of Experimental Research in Personality, Vol. 6, 1971, pp. 72-73.

<sup>17</sup> C. McClintock and R. G. Hunt, "Nonverbal Indicators of Affect and Deception in an Interview Setting," Journal of Applied Social Psychology, Vol. 5, 1975, pp. 54-67.

<sup>18</sup> Paul Ekman, Wallace V. Friesen, Maureen O'Sullivan and Klaus Scher, "Relative Importance of Face, Body and Speech in Judgments of Personality and Effect," Journal of Personality and Social Psychology, Vol. 38, No. 2, 1980, p. 270-277.

disclaimed this contention by categorically judging behavior associated with personality and effect. This suggests that a better understanding of communication and behavior may be achieved by looking at the nonverbal portion of the communicative process. This seems particularly important in studying deceptive communication because deception may occur at either end of a vast spectrum. For example, deception may occur in the police-suspect interrogation setting where the suspect refuses to communicate verbally. Paradoxically, the personnel manager may be confronted with a person seeking employment who freely communicates his qualifications. Yet, the person's "qualifications" may be false. In both situations, although markedly different, communication is present and may be evaluated. Although on the surface, the first situation offers no communication for evaluation, communication is present. Bennett re-enforced this when he said, "even if a person says nothing, he says something."<sup>19</sup> And, the latter situation offers both verbal and nonverbal communication for evaluation. Although such a situation may invite the opportunity for information overload, an evaluation may provide a better understanding of the potential employee's veracity. This suggests the necessity to investigate nonverbal communication and its relationship to deceptive communication more fully.

#### Nonverbal Communication and Its Relationship to Detecting Deception

Before exploring nonverbal communication and its relationship to

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<sup>19</sup> Roger E. Bennett, "A Study of Micromomentary Facial Expressions to Investigate the Detection of Deception in the Journalistic Interview," unpublished doctoral dissertation, University of Texas at Austin, 1978.

detecting deception, it is first necessary to briefly explain the process of nonverbal communication and its contemporary uses. Harrison defined nonverbal communication as the exchange of information through nonlinguistic signs.<sup>20</sup> Argyle explained in more detail the contemporary uses of nonverbal communication. He said that nonverbal communication in man is used to manage the immediate social situation, to support verbal communication and to replace verbal communication.<sup>21</sup>

Harrison also offered the following elaboration on the definition of nonverbal communication:

Sign: a sign is a stimulus which, for some communicator, "stands for" something else, it means something above and beyond itself.

Nonlinguistic: the primary linguistic sign is the word spoken or written form, thus we are concerned with the full range of nonword signs.

Information: In a technical sense, information involves the manipulation of uncertainty; it suggests that for some organism, uncertainty is decreased - or increased.

Exchange: by exchange we mean to imply more than one communicator linked in some way so at least one of them can respond to the signs produced by the other. The easiest example is two individuals in face to face interaction. But we would include mass media systems, where one communicator encodes messages, in one time and place, for other communicators at another time and place.....<sup>22</sup>

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<sup>20</sup> Randall P. Harrison, Beyond Words, (Englewood Cliffs, N.J.: Prentice Hall, Inc., Publishers, 1974), p. 25.

<sup>21</sup> Michael Argyle, "Nonverbal Communication in Human Interaction," in Nonverbal Communication, R.A. Hinde (ed.) (Cambridge: University Press, Publishers, 1972), p. 251.

<sup>22</sup> Randall P. Harrison, Beyond Words, (Englewood Cliffs, N.J.: Prentice Hall Inc., Publishers, 1974), p. 27.

Harrison noted that many writers on nonverbal communication have ducked the problem of defining the area of nonverbal communication and have, instead, listed types of the phenomena that should or could be included.<sup>23</sup>

Among these types, Ruesch and Kees included three areas: sign language, action language and object language.<sup>24</sup> Sign language includes the purposeful use of the gesture to replace words, such as, a hitchhiker's thumbing. Action language includes all movements that were not done with the express intent of communicating such as subliminal messages. Object language includes both the intentional and unintentional display of material things, such as clothing.<sup>25</sup>

Harrison reported several listings of the types of nonverbal communication. He pointed out that the number of areas that have been categorized ranges from three to eighteen, or more.<sup>26</sup> Bennett noted that the most beneficial of these categorical listings, based upon their relation to studying deceptive communications are: bodily contact,

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<sup>23</sup>Ibid.

<sup>24</sup>Jurgen Ruesch and Weldon Kees, "Toward a Theory of Nonverbal Communication," in Dimensions of Communication, Lee Richardson, (ed.), (Englewood Cliffs, N.J.: Prentice Hall Inc., Publishers, 1969), p. 453.

<sup>25</sup>Ibid.

<sup>26</sup>Randall P. Harrison, Beyond Words, (Englewood Cliffs, N.J.: Prentice Hall Inc., Publishers, 1974), p. 28.

posture, physical appearance, direction of gaze, nonverbal aspects of speech (timing, emotional tone and accept) and facial and gestural movement.<sup>27</sup>

Based upon the various lists reported by Harrison, it appears that some disagreement exists on what behavior may or may not be included within the realm of nonverbal communication. Some researchers have a difficult time narrowing the field of nonverbal communication. For example, as noted earlier, Schrank suggested more than 700,000 distinct gestures that have been estimated. This phenomena requires the researcher to closely code and evaluate nonverbal behavior that may signal the presence of deception.

However, because all authors do not agree on the various body positions that should be included in the nonverbal process, the following aspects of nonverbal communication have been selected for evaluation in this study: nonverbal aspects of speech, facial and gestural movement and posture. These areas of nonverbal communication are included among the types considered essential by Bennett in studying deceptive communication. Additionally, they correlate with the aspects of nonverbal communication examined by Ekman and Friesen when testing the multiple channel mode for deceptive clues.

But, how do these clues specifically relate to detecting deception? As noted earlier, behavior required to present deception is believed to

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<sup>27</sup> Roger E. Bennett, "A Study of Micromomentary Facial Expressions to Investigate the Detection of Deception in the Journalistic Interview," unpublished doctoral dissertation, University of Texas at Austin, 1978.

be fundamentally different from normal or honest behavior. Burgoon and Saine suggested that because people cannot monitor all their nonverbal signs at the same time, and because many signals are unconsciously motivated, the movements of the body often belie the thoughts.<sup>28</sup>

This theory, originally formulated by Ekman and Friesen, is based upon a Freudian hypothesis. Freud proposed three conflicting aspects of human personality: the id, the ego and the superego. In the id resides all of the unconscious impulses that a person is unaware of. The superego is the conscious and the ego guides a person's realistic coping behavior and mediates the eternal conflicts between what he wants to do and must not do.<sup>29</sup>

Whereas Freud described the conscious/subconscious area as two distinct areas, several symbolic interactionists believe there are several levels of awareness and that the conscious and subconscious may overlap.<sup>30</sup> Many of Skinner's theories fall into this category. However, Williams noted that "if one follows the ground rules (of Skinner's theory) of behaviorism in the study of language, little can be said about

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<sup>28</sup> Judgee K. Burgoon and Thomas Saine, The Unspoken Dialogue: An Introduction to Nonverbal Communication, (Boston: Houghton Mifflin Co., Publishers, 1978), p. 265.

<sup>29</sup> Robert E. Schell, et. al., Developmental Psychology Today, (New York: Random House, Inc., Publishers, 1975), p. 38.

<sup>30</sup> Dr. H. Will Norton, Advanced Reporting Class Lecture, University of Mississippi, June 24, 1980.

nonobservable, internal processes, particularly about such an abstract process as meaning.<sup>31</sup> Yet Harrison reported that most researchers agree with Ekman and Friesen's study of using "intent." The study was based upon Freud's theory, as discussed above. Ekman and Friesen, focusing on this problem in studying nonverbal cues, distinguished three levels dealing with Freud's theory. They were: informative, interactive and communicative.<sup>32</sup>

Harrison provided the following illustrations of Ekman and Friesen's "three-levels" of verbal cues:

Informative: If a young woman blushed over phallic paintings, not realizing their symbolic value, this might be informative to an observer.

Interactive: Are cues that influence interaction. For example, if an observer, seeing the woman's blush, decided to interact with a nice, modest person, this would be an example of an interactive cue.

Communicative: Those behaviors that are done with an intent to communicate.<sup>33</sup>

This literature suggests that some disparity exists in the use of nonverbal communication to detect deception. However, it does suggest the process may be valid if nonverbal clues to deception are properly coded and evaluated using Ekman and Freisen's "intent" methodology prior

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<sup>31</sup> Frederick Williams, "Language and Communication," Communication and Behavior, Gerhard J. Hanneman and William J. McEwen (eds.), (Reading, Mass.: Addison-Wesley Publishing Co., Inc., 1975), p. 67.

<sup>32</sup> Randall P. Harrison, Beyond Words, (Englewood Cliffs, N.J.: Prentice Hall, Inc., Publishers, 1974), p. 28.

<sup>33</sup> Ibid.

to subject evaluation in the experimental environment. This suggests the need for a further exploration of the precise nonverbal indicators of deception.

#### Nonverbal Indicators of Deception

As pointed out, Mehrabian and McClintock and Hunt suggested several distinct nonverbal clues may prevail in deceptive communications. In review, Mehrabian found that deceptive communicators moved less, were less immediate in their body positions, spoke less and moved slowly with more speech errors than their truthful counterparts. Similarly, McClintock and Hunt found that deceptive communicators, during deceptive exchanges, increase their postural shifts more often, engage in self-manipulations more (touching the face with the hands) and gestures are more prevalent over other communications than was present in truthful exchanges.

A review of other indicators show that Ekman and Friesen introduced the concept of detecting deception by evaluation of facial expressions. Their research explored the differences in what facial expressions may mean. Specifically, they identified four aspects of facial expressions that may lead to clues to determine if deception is present. These areas are: morphology, timing, location and microexpressions.<sup>34</sup>

Within the realm of morphology, Ekman and Friesen found that when a person is controlling what is shown on his face, more effort is focused

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<sup>34</sup> Paul Ekman and Wallace Friesen, Unmasking the Face, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., Publishers, 1975), pp. 150-151.

on managing what occurs in and around his mouth and lips than in the area of the eyes/lids and brows/forehead. They further suggested that observers of deceptive communications should watch what people do in the lower part of the face, particularly the lips and lines around the nose and lower cheek. Moreover, they suggested that in falsifying facial expressions the mouth is more the focus for management than the eyes and forehead. Yet, if falsifying is accomplished by neutralizing a felt expression, it is most likely that the expression will disappear from the mouth. But, if falsifying entails simulating an unfelt expression or emotion, it is most likely that the false expression will appear in the mouth area. Finally, they pointed out that if the falsifying involves masking a felt emotion with a simulated emotion, again the mouth is the most likely focus of attention.<sup>35</sup>

Within the area of sources of leakage and deceptive clues, timing or facial management may signal the presence of deceit. Ekman and Friesen explained that facial management includes onset timing (how long the expression remains on the face) and offset timing (how long it takes for the expression to disappear from the face). They suggested that evaluating timing may be used to identify deceptive clues. Specifically, the evaluation of onset time, duration and offset time and when timing is off may suggest that deceptive behavior may be present.<sup>36</sup>

Closely related to the timing of a facial expression is its location

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<sup>35</sup>Ibid.

<sup>36</sup>Ibid.

in the conversational stream, or just where the expression is placed in relationship to words, and its juxtaposition with body movement. Ekman and Friesen explained, for example, if anger were going to be simulated, the spoken words have to correspond with facial expressions. Therefore, if the words were spoken without facial expressions correlating with other related behavioral actions, deceptive behavior would probably be present.<sup>37</sup>

Lastly within the area of facial expressions, Ekman and Friesen explained that microexpressions occur in deintensifying, neutralizing or masking a facial expression when a person will interrupt an expression as it is occurring rather than intercepting it in advance of any other muscular movement. Here the explanation is presented that facial expressions last about one second and some microexpressions are the result of interruptions where the felt expression is interfered with and that they last well under one second.<sup>38</sup> Ekman and Friesen offered the following example of microexpression. The expression of fear is felt and when the person senses that he is looking afraid, the expression is deintensified. Because of the time factor involved in detecting microexpressions, much practice and attention is required to evaluate them in the deception environment. Often this process encompasses the use of videotaped interviews that must be played at a relatively slow speed.

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<sup>37</sup> Ibid.

<sup>38</sup> Ibid.

Ekman and Friesen also investigated hand movements to determine if they may indicate clues to deceptive communications. Their experimental design in this study encompassed using interview situations where student nurses honestly described their reaction to a pleasant film and then tried to deceive the interviewer in another situation, pretending pleasant feelings when they had just viewed a stressful film. These interviews were videotaped and subsequently coded to determine if behavior was significantly different in deceptive exchanges. The findings indicated that the hand shrug emblem (a turn of the hands from palms down to palms up) was almost twice as frequent in deceptive sessions as in honest sessions.<sup>39</sup>

More recently, Ekman and Friesen conducted additional investigations of hand movements and their relation to deception. They categorized hand movements into three distinct actions:

Emblems: The shrug emblem is performed with both hands and there is a smooth motion upward and outward laterally with a twisting of the palm of the hand from faced down at the beginning of the act to faced upward at the apex (point of maximum excursion) of the act. With minimal pause at the apex, the hands are returned to the rest position by simply reversing the direction and twist of the hands.

Illustrators: Are hand movements which follow the rhythm or content of speech. Almost all illustrators are movements of the hand (occasionally only fingers) out into space.

Manipulators: Are of two kinds. Self-manipulators and object manipulators. Self-manipulators are movements which occur against or on the body. The hand may move to the face or rub

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<sup>39</sup> Paul Ekman and Wallace V. Friesen, "Hand Movements," Journal of Communication, pp. 353-374, 1972.

or squeeze the cheek. One finger may scratch the palm of the same hand to which it belongs. Wherever they occur on the body, the hand may engage in various actions, such as scratches, picks, squeezes or wringing. Object manipulators are similar actions, but involve rubbing, playing, manipulating a nonanimate object, such as a part of a chair, microphone cord, pencil, etc.<sup>40</sup>

In this study, Ekman and Friesen also investigated the reliability of coders to accurately code hand movements of deceptive and honest communicators by using two different but related methods for studying nonverbal behavior. Little redundancy was found among the various hand measures, although scores for the frequency of an activity were highly intercorrelated for most classes of hand actions.<sup>41</sup>

Ekman and Friesen also established a procedure for measuring visibly different facial movements. The "Facial Action Code: (FAC) was derived from an analysis of the anatomical basis of facial movement.<sup>42</sup> Ekman and Friesen purport that the FAC can be used to describe any facial movement (observed in photographs, motion picture film or videotape) in terms of anatomical based action units. Ekman and Friesen describe FAC as a complicated process, requiring about 40 hours for observers to learn.<sup>43</sup> Yet, in their investigation, it was reported that the method

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<sup>40</sup> Paul Ekman, Wallace V. Friesen, and Harold Wallbott, "Measuring Hand Movements," Journal of Nonverbal Communication, Vol. 4(2), Winter 1979, pp. 99-100.

<sup>41</sup> Ibid, p. 97.

<sup>42</sup> Paul Ekman and Wallace V. Friesen, "Measuring Facial Movement," Environmental Psychology and Nonverbal Behavior, Vol. 1(1), Fall 1976, p. 56.

<sup>43</sup> Ibid.

produced reliability in scoring behavioral clues.

Ekman additionally investigated the impact of biological and cultural variables which may effect the process of measuring body and facial movement. Ekman noted that although some researchers suggest differences in nonverbal communication among cultures, it is more common to find that cultural differences effect emblems and illustrators and that biology has more effect on facial expressions.<sup>44</sup> Ekman suggested that cultural differences should not be generalized but, instead, investigated as variables in the experimental environment.

Ekman and Friesen also tested two hypotheses concerning differences between the face and body when a person is engaged in deception. They found that observers mentioned the face more often than the body when asked what behavior should be censored or controlled in perpetrating deception. Additionally, they found that when deceptive behavior was judged, more accurate judgments were made from the body than from the face, but when honest behavior was judged, there was little difference in accuracy achieved from the face or body.<sup>45</sup>

In another study, Ekman explored the relationship of eye brows in the emotional and conversational process. He noted that the exploration of eye brows might produce findings that could lead to explaining

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<sup>44</sup> Paul Ekman, "Biological and Cultural Contributions to Body and Facial Movement," in The Anthropology of the Body, John Blacking (ed.), (London: Academic Press, Publishers, 1977), p. 76.

<sup>45</sup> Paul Ekman and Wallace V. Friesen, "Detecting Deception from the Body of Face," Journal of Personality and Social Psychology, Vol. 29, No. 3, 1974, p. 288.

behavior. However, he suggested that research is currently lacking in this area to sufficiently use this possible indicator of deception.<sup>46</sup>

Zuckerman, et. al., studied facial and vocal clues to deception, and found that facial expressions of deception (as compared to honest facial expressions) were rated as less pleasant, while vocal expressions of deception were rated as less honest, less assertive and less dominant.<sup>47</sup>

Lastly, Kraut examined strategies that observers use to see through self-presentations. He found that deceivers gave less plausible, shorter answers with longer periods of latencies.<sup>48</sup>

This literature demonstrates the previous attempts to isolate one area of the body (for example, facial expressions) and determine from that area of the body what signals may be considered reliable in judging deceptive behavior. Although these studies are considered invaluable in studying deceptive communications, Ekman and Friesen appear to have suggested that when studying deceptive communication it is preferable to use a combination of different modes, including verbal communication, to accurately detect deception. The verbal mode and its clues to deceptive behavior will be reviewed in conjunction with a review of additional deception studies.

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<sup>46</sup> Paul Ekman, "About brows: emotional and conversational signals," Human Ethology, M. von Cranach, K. Foppa, W. Lepenies and D. Floog (eds.), (Cambridge, 1979), pp. 169-202.

<sup>47</sup> Miron Zuckerman, Judith A. Hall, Deborah T. Larrance and Robert Rosenthal, "Facial and Vocal Cues of Deception and Honesty," Journal of Experimental Social Psychology, Vol. 15, 1979), p. 378.

<sup>48</sup> Robert E. Kraut, "Verbal and Nonverbal Cues in the Perception of Lying," Journal of Personality and Social Psychology, Vol. 36, No. 4, p. 380.

The Deception Studies and Related Investigations

As previously discussed, several deception studies exist which have explored the ability of observers to detect deceptive communications. In one of the first deception investigations, Marston attempted to apply the reaction time symptoms of deception to legal testimony. Marston theorized that the practical value of psychological studies in the field of detecting deception was dependent upon a complete and comprehensive scientific discovery and analysis of all symptoms of deception rather than attempted use of one isolated set of these symptoms for detection of deception on the part of witnesses or criminals.<sup>49</sup> Marston's study was directed at investigating the reaction times of a subject during deception and tried to establish a method for practical application of detecting deception. To explore this thesis, Marston devised an experiment that entailed giving the participants cards containing information, and when they were subsequently interviewed, half of the subjects were required to randomly attempt to deceive the interviewer. Subsequently, the reaction times of the participant's truthful and deceptive answers were recorded.

Marston first identified deceitful subjects by delayed reaction time (the amount of time the subject expended before responding to the experimenter's question). Subsequently, deceitful subjects were interviewed concerning the experiment and categorized as positive or

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<sup>49</sup> William M. Marston, "Reaction-Time Symptoms of Deception," Journal of Experimental Psychology, 1920, p. 72.

negative types based upon data furnished in the interview, coupled with a review of recorded behavior during the experiment. Marston reported that in positive type deceivers, overt characteristics of lying are present in their behavior.<sup>50</sup> For example, frequent and obvious confessions, embarrassments, fear and nervousness make the positive type deceiver's attempts to lie easy to detect. In contrast, negative type deceivers remained calm, confident and demonstrated a high degree of intellectual concentration which made their deceptive behavior difficult to detect.<sup>51</sup>

In another early experiment, an effort was made to explore the ability of observers to detect deception solely from the voice as it is transmitted over a public address system. Fay and Middleton devised an experiment using six men and women to transmit truthful and lying messages over a public address system. Then they allowed 47 listeners to judge the truthful and honest vocal clues of the speakers and then render a judgment as to the veracity of the message. They found that: "1) sex differences in judgment were negligible; 2) speakers were judged with accuracy slightly exceeding chance expectation; 3) truth-telling, or lying, was easier to distinguish in some voices than in others; 4) men speakers were judged slightly more accurate than women speakers; 5) women listeners were slightly better judges, they were more accurate in judging both men and women speakers; and 6) truth-telling was judged less

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<sup>50</sup>Ibid, pp. 74-86.

<sup>51</sup>Ibid.

accurately than lying - truth was judged correctly about one-half of the time and lying was judged correctly about three-fifths of the time."<sup>52</sup>

In another study investigating the vocal clues of deception, Krauss, et. al., explored pitch changes during attempted deception. Krauss explored speech samples used in interview situations that included both deceptive and honest communications and found that a speaker's pitch is much higher during deception than during honesty. Also, the degree of pitch is more amplified when stress or an arousing action is introduced as a variable in the interview situation.<sup>53</sup> In a related experiment, Krauss had judges rate the truthfulness of true and false utterances either from audiotape that had been electronically filtered to render the semantic content unintelligible or from an unfiltered tape. Krauss suggested, from analysis of the data generated from this experiment that "although raters do not ordinarily use pitch variations as a clue to detecting deception, they will do so to some extent when semantic content is unintelligible."<sup>54</sup>

Motley also attempted to detect oral lies through measurement of their relationship to accompanying acoustic spectra. Motley hypothesized that the attempted detection of lies through spectrographic analysis

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<sup>52</sup> Paul J. Fay and Warren C. Middleton, "The Ability to Judge Truth-Telling, or Lying, from the Voice as Transmitted Over a Public Address System," The Journal of General Psychology, Vol. 24, 1941, p. 215.

<sup>53</sup> Robert M. Krauss, Lynn A. Streeter, Valerie Geller, Christopher Olson and William Apple, "Pitch Changes During Attempted Deception," Journal of Personality and Social Psychology, Vol. 35, No. 5, p. 345.

<sup>54</sup> Ibid, p. 349.

would differ significantly from chance expectation and that the attempted detection of lies with the unaided ear would also differ significantly from chance expectation. To test these hypotheses, Motley recorded the honest and deceptive verbal responses on audiotape and subsequently presented them to students who judged their veracity based upon vocal content. Analysis of the data indicated that detection of deception was slightly less than chance expectation. In explaining the rejection of the hypotheses, Motley suggested that spectrographic analysis would not be practical in lie-detection situations, because acoustic voice variables may be altered voluntarily.<sup>55</sup>

In studies unrelated to the acoustic correlations to deception, Knapp and Comadena conducted a comprehensive literature research pertaining to deception. They reviewed the theory and history of deceptive communication research and examined the actual deception process, including the actors involved in deception and cited variables that must be considered in deception research, such as motivation, awareness and consequences. They also discussed the vocal and verbal clues to detecting deception and the ability of observers to detect deception when confronted with it.<sup>56</sup> Most of the major areas of this literature have been discussed and therefore it is not necessary that they be discussed again.

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<sup>55</sup> Michael T. Motley, "Acoustic Correlates of Lies," Western Speech, Vol. 38, 1974, pp. 81-87.

<sup>56</sup> Mark L. Knapp and Mark E. Comadena, "Telling It Like It Isn't: A Review of Theory and Research on Deceptive Communications," Human Communication Research, Vol. 5, No. 3, Spring 1979, p. 271.

Whereas Knapp and Comadena's study was broad in scope, Ekman and Friesen explored the correlation of the visual and vocal channels in judgments of effect. Specifically, they attempted to interrelate measurements in the visual channel with those in the vocal channel. They employed the use of videotapes which depicted honest and deceptive behavior of subjects who had spontaneously responded to staged stimuli. These videotapes were subsequently presented to observers for evaluation. An analysis was then made based upon evaluations of either the face, body, full speech, and filtered speech. These evaluations were then correlated to the descriptive measurements of pitch and hand movements. Also Ekman and Friesen attempted to determine how well measurements of behavior account for observer judgments within each channel.<sup>57</sup>

From this experiment, it was determined that measures of hand movements and voice significantly changed from honest to deceptive interaction and accounted for certain inferences by observers when they judged voice or body movement.<sup>58</sup> Ekman and Friesen also determined that pitch became higher in deception; low pitch was associated with observer's judgments that a person was sociable and relaxed, and negatively correlated with illustrators (hand movements that follow the rhythm of speech).<sup>59</sup>

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<sup>57</sup> Paul Ekman, Wallace V. Friesen and Klaus Scherer, "Body Movement and Pitch In Deceptive Interaction," Semiotica, Vol. 16:1, 1976, pp. 23-26.

<sup>58</sup> Ibid. p. 26.

<sup>59</sup> Ibid.

As previously discussed in this thesis, Bennett attempted to determine the ability of journalism undergraduate students to detect micromomentary facial expressions (MME) in the journalistic interview.<sup>60</sup> To explore this, Bennett arranged for guest speakers to address a beginning reporting class and to deceive the class concerning various areas of the speaker's personal history. Bennett also arranged for the speakers to be videotaped. However, the speakers were not aware of the videotaping process. Subsequently, Bennett coded the speaker's facial expressions for deceptive leaks based upon this MME theory and the edited tapes were presented to control and treatment groups for judgments of deception and honesty. He found that untrained observers cannot distinguish deception from honesty above the chance level by evaluating MME. However, he did determine that observers, alerted to the method of using MME to detect deception better judges than naive observers (observers untrained in detecting deception by evaluating behavior).<sup>61</sup>

Although Bennett's study possesses much merit, it is not considered entirely applicable in detecting deception in everyday encounters. A major tenet of Bennett's dissertation was that journalists are often allowed to view only the upper body portion of a speaker, because the speaker's body is hidden by a lecturn at press conferences. Therefore he

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<sup>60</sup> Roger E. Bennett, "A Study of Micromomentary Facial Expressions To Investigate the Detection of Deception in the Journalistic Interview," unpublished doctoral dissertation, University of Texas at Austin, 1978.

<sup>61</sup> Ibid.

purports that journalists are required to rely solely on facial expressions for deceptive clues.<sup>62</sup>

Yet, this is not considered entirely accurate as often journalistic interviews are similar to the personnel or police interview where the upper body, as a minimum, and sometimes the entire body is exposed for evaluation. Nor did Bennett include the evaluation of vocal clues which are always present in the journalistic interview. Also, Bennett's study employed the use of videotapes that were played at a slower rate than MME actually occurs in real life situations. This may have caused increased accuracy rate for observers.

The argument presented here seems to be clarified by Shapiro. He suggested that the proper approach in studying behavior is to evaluate the entire body as variability may occur among individuals.<sup>63</sup>

Additionally in line with this argument, Archer and Akert provide some clarification. They devised an experiment aimed at measuring the relative contributions of verbal clues versus full channel or multiple clues.<sup>64</sup> Their method consisted of having two men, who had just played in a basketball game, discuss which man had won the game. Generalities and ambiguous statements were purposely interjected into the conversation.

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<sup>62</sup>Ibid.

<sup>63</sup>Jeffrey G. Shapiro, "Variability and Usefulness of Facial and Body Cues," Nonverbal Communication, (Beverly Hills, California: Sage Productions Inc., Publishers, 1972), pp. 61-66.

<sup>64</sup>Dane Archer and Robin M. Akert, "Words and Everything Else: Verbal and Nonverbal Cues in Social Interpretation," Journal of Personality and Social Psychology, Vol. 35, No. 6, 1977, pp. 443-449.

Subsequently, a verbal transcript was presented to one group who was asked to judge which man had won the game. A videotaped segment of the men's conversation was presented to another group, who were asked to render judgments concerning who had won the game. Analysis of the data revealed that subjects using the verbal transcript version actually did worse than chance in selecting the true version of the episode. However, subjects who viewed the videotape version of the verbal exchange were significantly more accurate in their judgments.<sup>65</sup>

Similarly, Maier and Thurber explored accuracy of judgments made about deception when an interview is watched (watched and heard), heard, and read. Maier and Thurber devised an experiment which encompassed an interview situation between a student and professor concerning whether the student had altered an examination. In the role-playing interview situation, the student portrayed both honest and dishonest behavior. Maier and Thurber found that listeners and readers (77.0% and 73.0% respectively) were significantly better judges of deception than were watchers (58.3%).<sup>66</sup>

Based upon these findings, Maier and Thurber suggested that the presence of the individual being judged served to reduce the accuracy of judgments and increased the frequency of judgments of dishonesty. In explaining these results they also suggested that readers had the

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<sup>65</sup>Ibid.

<sup>66</sup>Norman R.F. Maier and James A. Thurber, "Accuracy of Judgments of Deception When An Interview Is Watched, Heard, And Read," Personnel Psychology, Vol. 21, 1968, pp. 23-30.

opportunity to re-read the manuscript and therefore could correct any losses of attention.<sup>67</sup>

This study suggests some disagreement from previous reports that purport that multiple channel modes of evaluation are more effective in judgments of effect. However, it should be noted that this experiment was not videotaped and instead presented live on a stage with observers as the audience. The failure to hold the interview constant by the use of videotape may have been responsible for the introduction of variables unknown to the researcher. This may serve to explain the findings reported in this study which are in contrast to other reports.

Maier and Janzen investigated the reliability of reasons used in making judgments of honesty and dishonesty.<sup>68</sup> To investigate this question, they asked subjects to observe role-playing situations involving a student and professor interview concerning a question of honesty and dishonesty. After observing the role playing situation, observers were asked to judge the honesty of the role-playing student and to cite the student's behavior that the judgment was based upon.

Maier and Janzen found that the students made correct judgments of honesty and deception above the chance level. However, there was no correlation found between the accuracy level of judgments and the

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<sup>67</sup> Ibid, p. 30.

<sup>68</sup> Norman R. F. Maier and Junie C. Janzen, "Reliability of Reasons Used in Making Judgments of Honesty and Dishonesty," Perceptual and Motor Skills, Vol. 25, 1967, pp. 141-151.

behaviors cited that the students used to make judgments.<sup>69</sup>

This investigation is somewhat misleading as the authors suggest that observers were asked to list the behaviors that prompted their judgments. The behavior was not categorized as nonverbal or verbal clues, but was listed into five other categories: 1) facts, 2) role-additions, 3) generalizations, 4) attitudes and 5) intuitions. Based upon this consideration then, the authors suggestion that when evidence is lacking (in a deceptive situation) decisions will be made and defended and logic is not used in rendering judgments, appears unfounded.<sup>70</sup> The unfounding of the aforementioned contention would especially be applicable to this study, where some observers are generally cognizant of the theory of detecting deception by evaluating behavior.

Baucher, et. al., offered a discussion that puts much of the literature discussed in this paper thus far into perspective. Baucher reviewed the content analytic procedures associated with investigations that have examined the verbal and nonverbal behavior of deceivers versus nondeceivers (Mehrabian; Ekman and Friesen; Knapp, Dennis and Hart; and McClintock and Hunt). From this review, Baucher suggested that verbal and nonverbal clues work conjunctively and disconnected Maier's findings

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<sup>69</sup> Ibid, p. 151.

<sup>70</sup> Ibid, p. 141.

(discussed above) as "based upon impressionistic and intuitive grounds, rather than on specific behavior."<sup>71</sup>

Baucher formulated three hypotheses concerning detection of deception. These hypotheses have been mentioned previously in this paper, but will now be discussed in detail. The information utilization hypothesis suggests that as the amount and quality of verbal and nonverbal information available to an observer increases, so should his or her accuracy in making attributions of truthfulness and deception.<sup>72</sup> Baucher pointed out that the rationale of this hypothesis suggests that the quality of available cues is directly related to increased perceptual acuity on the part of a participant in a deceptive transaction, therefore when quality clues are available he should be more able to detect signals of deceit, and thus more accurately judge the veracity of the communicator.<sup>73</sup>

The second hypothesis concerning distraction is based upon the effects of distractive stimuli on persuasion and source credibility.<sup>74</sup> This hypothesis is analogous with the findings reported by Maier and Thurber. The hypothesis contends that during role-playing deceptive performances, deceivers may attempt to present normal communicative

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<sup>71</sup> Joyce E. Bauchner, David R. Brandt and Gerald R. Miller, "The Truth/Deception Attribution: Effects of Varying Levels of Information Availability," in Communication Yearbook I, B. R. Ruben (ed.) (New Brunswick, New Jersey: Transaction Books, Publishers, 1977), p. 230.

<sup>72</sup> Ibid.

<sup>73</sup> Ibid.

<sup>74</sup> Ibid, p. 231.

behavior to such a great degree that the observer may be distracted from actual cues which are the true indicators of deception.<sup>75</sup> Baucher suggested that unless distraction is controlled, the rate of deception detected would be reduced.

The information overload hypothesis predicts similar results of those predicted by the distraction hypothesis. However, whereas the distraction hypothesis suggests that when a receiver must attend to increasing amounts of informational stimuli, his accuracy may be reduced, the information overload hypothesis suggests receivers may block-out information.<sup>76</sup> Baucher explained that when an observer receives more information than he can process, higher error rates of judgment occur. This is attributed to the observer stereotyping all confederates in the deception experiment as honest or deceptive and the lower accuracy rate of attribution is imminent.<sup>77</sup>

Baucher attempted to determine which of the above hypotheses is most effective by varying the channel through which observers view truthful and deceitful communicators, obtaining estimates of the verbal and nonverbal information afforded by each channel and examining judgment accuracy in relation to the information afforded.<sup>78</sup>

In order to investigate this, Baucher selected six subjects who

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<sup>75</sup>Ibid.

<sup>76</sup>Ibid.

<sup>77</sup>Ibid, p. 232.

<sup>78</sup>Ibid.

either lied or told the truth in a postprocedure interview. Eighty observers viewed the subjects either live through a one-way mirror, saw them on videotape or read a transcript of the interview. Subsequently, the observers rendered judgments of truth or deception and trained coders coded estimates of how much total verbal and nonverbal information was available to observers through each channel.

Baucher reported that the availability of total information accounted for less than one percent of the variance of accuracy scores. Moreover, she suggested that the mean accuracy scores in each condition indicate that none of the hypotheses can predict the rise and fall of accuracy scores.<sup>79</sup>

In attempting to explain the rate of detection reported - 56.7% for live judgments, 46.7% for videotape, and 31.6% for audiotape - Baucher suggested that it is highly questionable whether untrained observers can accurately detect deception on the part of strangers.<sup>80</sup>

Although Baucher, in explaining these findings, appears to take the offensive and criticize methodologies in other deception studies, the major findings reported here are not unique. Baucher claims that untrained observers cannot accurately detect deception in strangers above chance level. Yet, many researchers agree with her. For example, Knapp, et. al., reported two years earlier that the sum total of all research in deceptive communications indicates that without the aid of

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<sup>79</sup>Ibid, p. 239.

<sup>80</sup>Ibid, p. 240.

mechanical equipment, untrained observers detect deception only about or slightly above chance.<sup>81</sup>

Yet, Baucher played down the most important tenet of her study. That being the considerations of the variables discussed as hypotheses and the manner in which communication was coded and evaluated prior to presentation. That portion of her study, at least, offers some support to this thesis, which will examine or at least control many variables in the experimental environment that could effect the accuracy of observers to detect deception.

Whereas Baucher attempted to determine the ability of observers to detect deception among strangers, Brandt, et. al., attempted to measure the ability of observers to detect deception among people with whom they were familiar.<sup>82</sup> Brandt theorized that familiarity among deceiver and observer would result in a "baseline" for comparison which would result in increased accuracy of judgments. Brandt also suggested that knowledge of a communicator's normal truthful expressive style should enhance an observer's ability to detect deception.

To investigate this, Brandt devised an experiment that included using 23 law enforcement majors who were told to lie or tell the truth

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<sup>81</sup>Mark L. Knapp, Roderick P. Hart, and Harry S. Dennis, "An Exploration of Deception As A Communication Construct," unpublished manuscript, Purdue University, 1975, p. 16.

<sup>82</sup>David R. Brandt, Gerald R. Miller, and John E. Hocking, "The Truth-Deception Attribution: Effects of Familiarity On The Ability of Observers to Detect Deception," Human Communication Research, Vol. 6, No. 2, Winter 1980, p. 100.

regarding their true feelings after viewing pleasant and unpleasant slides. The baseline segment was videotaped with the subject giving true information about his home town, major and other demographic information. The students were asked to participate in this experiment by their department chairman and were told reports of their performance would be reported to the school of criminal justice. This was a cover story designed to stimulate ego involvement on the interviewee's part by emphasizing the consequences of performing well.

The interviews were videotaped and 23 sessions were edited into one 30-minute tape of 16 interviews, eight truthful and eight untruthful. The tapes were then presented to 50 undergraduate students to evaluate deceptive and honest behavior. The basic procedure consisted of showing the observer the baseline segment and then showing the test segment. Observers were exposed to the baseline segment as much as six times to test the familiarity hypothesis.

This study attempted to determine the degree of linearity in relationship between familiarity and judgment accuracy in the detection of deception. However, the findings suggest "that familiarity is nonlinearly related to judgmental accuracy in deception detection, and that the relationship was best described by an inverted parabolic curve."<sup>83</sup>

Brandt offered several explanations for this finding. He suggested that Baucher's information overload hypothesis could apply in this

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<sup>83</sup>Ibid, p. 107.

experiment. Specifically, the observers could have received more information in the baseline segment and when combined with the information furnished in other segments, may have caused the observer to be unable to process both segments of data simultaneously. Brandt noted that when observers were exposed to as many as six baseline segments of the same behavior they became fatigued and showed a loss of interest. Conversely, in low-familiarity and moderate-familiarity conditions, increased exposure to the baseline segment seemed to enhance judgmental accuracy.<sup>84</sup>

Several other factors were mentioned by Brandt, but not fully explained that may serve to understand why familiarity did not increase judgmental accuracy of deception. Brandt asked law enforcement majors to lie, telling them that police officers ought to be good liars. And he did not fully explain the nature of the study to these confederates. Yet, there is nothing to indicate that police officers make good liars or that some reservations did not exist on the part of the confederates to participate in an experiment of this nature. This is particularly important when there is nothing to indicate in this study that Brandt had the videotaped segments coded for deceptive leaks or cues to deception.

Brandt also mentioned, as a deficiency in this study, that the level of familiarity generated by the baseline segments were not the equivalent of knowing the person's individual normal expressive style. This point has to leave doubts as to whether familiarity was truly investigated in this study.

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<sup>84</sup> Ibid.

Although we have mentioned Ekman and Friesen's investigation of body and facial clues, an exploration of this study more fully may provide a better understanding of the role of familiarity in deceptive communications. Ekman and Friesen hypothesized that certain aspects of nonverbal communication may subconsciously escape the ego, depending upon the degree to which the individual monitors and controls behavior and based upon the degree to which the individual perceives that others attempt to monitor and control that behavior.<sup>85</sup>

In this study, Ekman and Friesen employed the use of the pleasant/unpleasant films to elicit truthful and lying behavior and allowed some observers to render assessments based upon preliminary exposure to the communicator's honest behavior.

The findings generated by this study suggested that observers who were allowed to view a baseline segment and then view the body-only condition were significantly more accurate than observers who observed the face and head only.<sup>86</sup>

Knapp. et. al., examined deceptive communications to attempt to determine what nonverbal behaviors are characteristic of intentional deceptive communications and to determine if the degree of communicator Machiavellianism affects the manifestation of certain verbal and

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<sup>85</sup> Paul Ekman and Wallace Friesen, "Detecting Deception From The Body Or Face," Journal of Personality and Social Psychology, Vol. 29, No. 3, 1974, pp. 288-289.

<sup>86</sup> Ibid, p. 295.

nonverbal behaviors during intentional deception.<sup>87</sup> Knapp theorized that the following areas of nonverbal communication would be manifest in deceptive communications: 1) anxiety responses; 2) excessive responses; 3) incongruous responses; and 4) indirect responses.<sup>88</sup>

Knapp suggests that because deception is accompanied by guilt or psychological stress, deceptive clues might prevail in the form of anxiety. He cites Mehrabian's research that suggests that introverted and highly nervous persons are less effective in concealing their deceptive clues than those who are highly proficient in interpersonal manipulations (high in Machiavellianism).<sup>89</sup>

Knapp pointed out that whereas the anxious deceiver may emit few deceptive signals, some deceivers may display excessive signals. These signals, he suggests, are a result of attempting to control deceptive clues, but result in magnifying other behaviors.<sup>90</sup>

According to Knapp, deceivers also may be characterized by a lack of verbal and nonverbal directness.<sup>91</sup> This may include providing short or evasive answers or refusing to establish eye contact.

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<sup>87</sup>Mark L. Knapp, Roderick P. Hart, and Harry S. Dennis, "An Exploration of Deception as A Communication Construct," unpublished manuscript, Purdue University, 1975.

<sup>88</sup>Ibid.

<sup>89</sup>Ibid.

<sup>90</sup>Ibid, p. 16.

<sup>91</sup>Ibid.

Within the realm of this literature, Knapp attempted to determine if deceivers presented more vagueness, nervousness, uncertainty, reticence, dependence and unpleasantness than nondeceivers and also attempted to advance his theory that Machiavellianism in communicators would alter these effects.

To explore this, Knapp obtained the services of 38 undergraduates who were veterans of military service. He subsequently had them express honest and truthful responses to questions in which they possessed strong convictions. For example, one response dealt with increasing V.A. Educational benefits. These interviews were videotaped, capturing honest and deceptive segments of the subject's behavior. The videotaped segments were then subjected to content analytic coding to investigate the hypotheses formulated by Knapp.

Behavior correlates were coded under the following rubrics: Uncertainty: absolute verbs, confidence ratio, different works, qualifications and hypotheticals; Vagueness: factual statements, self-experience, other experiences, past references, leveling terms and future references; Nervousness: speech errors, word/phrase repetitions, adaptor duration, leg movements and gestural duration; Reticence: total words, message duration, pauses and probes; Dependence: self references, self-interests, bandwagon and other references; and Negative Affect: affirmative nods, smiles and other interest, eye duration, group references, eye contact units and disparaging statements.

Knapp found that of 32 predicted behaviors, 26 were accurate in predicting behavior. Only factual statements, self-experience, self-

interest, other references and disparaging statements were not significant in predicting behavior.<sup>92</sup>

The hypothesis concerning Machiavellianism was rejected. Knapp noted that "no interaction effects were observed between deception and Machiavellianism and that high Machs behaved similarly in both deceptive and nondeceptive conditions."<sup>93</sup> However, Knapp noted that this area requires additional research.

Kraut staged two experiments which examined strategies observers employ to see through self-presentations.<sup>94</sup> As we noted earlier, Kraut suggested that deceivers gave less plausible, shorter answers with longer periods of latencies.

This study allowed Kraut to make several suggestions concerning the use of nonverbal and verbal clues in the evaluation of behavior. He suggested that it would be a mistake to treat verbal and nonverbal clues associated with deception as if they were analogous. Kraut additionally suggested that when evaluating cues to deception, it is likely that such cues are either performance cues or emotional cues. He explained that with performance cues, the audience (or observer) perceives that an actor has failed to adequately control some aspect of his deceptive performance. Similarly, emotional cues are situations or verbal

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<sup>92</sup>Ibid, p. 22.

<sup>93</sup>Ibid, p. 26.

<sup>94</sup>Robert E. Kraut, "Verbal and Nonverbal Cues in the Perception of Lying," Journal of Personality and Social Psychology, Vol. 36, No. 4, 1978, pp. 380-391.

contexts in which deception is likely to occur. Kraut suggested that emotional cues, unlike performance cues, are inseparable from what a particular deceiver does and often have their origins in social norms outside the deceiver's performance.<sup>95</sup>

As mentioned, one of the major studies organic to this thesis is Ekman and Friesen's exploration of multiple channels. Ekman and Friesen briefly reviewed the literature relative to judgments of sources of information made available to the observer and suggested that "it is difficult to reach conclusions from these experiments because of a number of methodological shortcomings."<sup>96</sup>

Ekman and Friesen attempted to determine which channel (face expressions, body language, speech) correlates most with ratings made by observers who were exposed to the full audiovisual record. Ekman and Friesen pointed out that they did not expect one channel to contribute the most, but hypothesized that the relative contribution of a channel would depend upon other variables.<sup>97</sup>

To determine the channel that would correlate most with the multiple channels, Ekman and Friesen designed three experiments to explore each channel of communication. Results of the experiment led

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<sup>95</sup> Ibid, p. 389.

<sup>96</sup> Paul Ekman, Wallace Friesen, Maureen O'Sullivan, and Klaus Scherer, "Relative Importance of Face, Body, and Speech in Judgments of Personality and Affect," Journal of Personality and Social Psychology, Vol. 38, No. 2, 1980, p. 270.

<sup>97</sup> Ibid, 271.

Ekman and Friesen to suggest that "it would be unwise to claim that any one channel predominates in judging people."<sup>98</sup> Similarly, they suggested that the channel that predominates depends upon what characteristic is being judged as well as the interpersonal situation in which the judged behavior occurs.<sup>99</sup>

Ekman and Friesen noted that channels correlated differently for one of many reasons. For example, one channel could be unreliable and therefore could restrict correlation: This pointed out the need to use multiple channels in evaluations to insure that observers are exposed to the total array of indicators of deception.

Similar to Ekman and Friesen's research, Zuckerman explored the relationship between facial expression and filtered speech in honest and deceptive communications in posed and spontaneous situations. More specifically, he investigated the degree in which nonverbal cues transmit information about deception.<sup>100</sup>

The experiment designed to investigate this encompassed recording and then rating nonverbal clues to honesty and deception. In the process of videotaping this portion of the experiment, subjects were required to give responses to questions that either represented their honest or dishonest views. The taping process captured facial

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<sup>98</sup> Ibid.

<sup>99</sup> Ibid.

<sup>100</sup> Miron Zuckerman, Judith A. Hall, Deborah T. Larrance, and Robert Rosenthal, "Facial and Vocal Cues of Deception and Honesty," Journal of Experimental Social Psychology, Vol. 15, 1979, p. 378.

expressions either spontaneous or posed. Subsequently, the subjects used for videotaping were used as judges of the veracity of the messages.<sup>101</sup>

The findings of the study indicated that: "1) for both the facial and vocal channels, posing behavior produced a higher level of accuracy; 2) facial expressions of deceptive communications were rated as less pleasant; 3) senders tend to appear consistently honest or dishonest; 4) in the posing condition, the sender's ability to convey honesty/deception through facial expressions and vocal clues were positively and significantly correlated; and 5) senders whose unfiltered speech indicated more involvement were judged more honest."<sup>102</sup>

Hemsley attempted to determine whether the occurrence of deception is reflected in a communicator's extensile observable behavior. An analytic approach to evaluating deceptive behavior revealed that subjects blinked more, engaged in more eye movements, had more speech nonfluencies, displayed more self-manipulators which lasted for long intervals, had shorter response latencies, smiled more and added more information to their communication.<sup>103</sup>

Hemsley also conducted an experiment to determine if these indicants could be employed by naive observers to detect deception above the chance

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<sup>101</sup> Ibid, p. 384.

<sup>102</sup> Ibid, pp. 378-379.

<sup>103</sup> Gordon D. Hemsley, "Experimental Studies In Behavioral Indicants of Deception," Dissertation Abstracts International, Jan-Feb 1979, pp. 3588B-3589B.

level. Although some support was given to the theory that female observers could detect truthfulness of a female communicator at slightly above chance, the overall hypothesis that naive observers can detect deception above the chance level was rejected.<sup>104</sup>

Ralph's investigation attempted to synthesize correspondent influence theory and the leakage hypothesis. Correspondent influence theory states that observers attribute speakers to hold true attitudes correspondent with espoused attitudes. The leakage hypothesis suggests observers can use nonverbal speaker clues to detect speakers espousing attitudes not correspondent with their own attitudes, for example to make deceptive attributions.<sup>105</sup>

To explore this, Ralph produced videotapes of 32 speakers (16 honest and 16 dishonest) which were used as stimulus material and presented to 64 observers. Multiple dependent variable analyses indicated that the leakage hypothesis, as currently formulated, was inadequate to predict nonverbal behavior of honest and deceptive male and female speakers. Further, it was found that observers were unable to accurately decode speaker nonverbal cues to deception.<sup>106</sup>

Katz attempted to determine if institutionalized boys exhibit

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<sup>104</sup>Ibid.

<sup>105</sup>Laurence Ralph, "The Encoding and Decoding of Cues to Deception," Dissertation Abstracts International, 1975, p. 3120-B

<sup>106</sup>Ibid.

significant variations in specific nonverbal cues between deceptive/<sup>107</sup> nondeceptive interactions.

Data was secured from observations of subjects engaged in two deceptive/nondeceptive sessions. Katz hypothesized that gaze aversions, smiling rate, postural shifts and interaction distances would be significantly greater during periods of deception. However, no significance was found in any of these cues except smiling.

Knapp suggested that studying child behavior in deception might lead to gaining some perspective on adult deceptions.<sup>108</sup> Ekman and Oster appear to have initiated some related research in this area. They reviewed theory and applicability of applying facial behavior to child development.<sup>109</sup>

Ekman and Hager explored the long-distance transmission of facial affect signals.<sup>110</sup> Specifically, the study examined the distance at which certain facial expressions can transmit affect messages. To investigate this, Ekman and Hager had expressions shown in still

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<sup>107</sup> Mark Katz, "Nonverbal Indices of Deception Among Institutionalized Boys," Dissertation Abstracts International, 1975, p. 2448-B

<sup>108</sup> Mark L. Knapp and Mark E. Comadena, "Telling It Like It Isn't: A Review of Theory and Research on Deceptive Communications," Human Communication Research, Vol. 5, No. 3, Spring 1979, p. 282.

<sup>109</sup> Paul Ekman and Harriet Oster, "Facial Behavior in Child Development," in Minnesota Symposia On Child Psychology Volume 11, Andrew Collins, (ed.) (Hillsdale, New Jersey: Lawrence Erlbaum Associates, Publishers, 1978).

<sup>110</sup> Joseph C. Hager and Paul Ekman, "Long-Distance Transmission of Facial Affect Signals," manuscript furnished courtesy of Paul Ekman.

photographs and in live portrayals to observers at distances of 30, 40, and 45 meters. The findings suggested that observers were able to label expressions accurately from these distances. However, accuracy declined as distance increased.<sup>111</sup>

Bowers, et. al., explored the relationship between semantics and pragmatics in devious messages.<sup>112</sup> They found that certain questions may be exploited by deceivers and are often manipulated to the deceiver's advantage.

Stebbins examined the nature of put-ons, or deception, in American society.<sup>113</sup> He explored the underlying motives for put-ons and suggested that deception in social situations are normally attributed to: social interaction, embarrassment, social identity, and social situations.

Ekman, et. al., explored the possibility that image size might effect judgments of the face. They found that regardless if the video image of the face was larger than life or about one-fifth life size, no difference was present in observer evaluations.<sup>114</sup>

This literature depicts investigations that have explored the

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<sup>111</sup>Ibid.

<sup>112</sup>John Waite Bowers, Norman D. Elliot, and Roger J. Desmond, "Exploiting Pragmatic Rules: Devious Messages," Human Communication Research, Vol. 3, No. 3, Spring 1977, pp. 235-241.

<sup>113</sup>Robert A. Stebbins, "Putting People On: Deception of Our Fellowman in Everyday Life," Sociology and Social Research, Vol. 69, 1975, p. 189-200.

<sup>114</sup>Paul Ekman, Karen A. Brattesani, Maureen O'Sullivan and Wallace Friesen, "Does Image Size Affect Judgments of the Face?" Journal of Nonverbal Behavior, Vol 4(1), Fall 1979, p. 57.

ability of observers to detect deception and also has discussed relative matters, such as familiarity and varying levels of information on the ability of persons to detect deception. It was pointed out that polygraphists may be able to use deceptive clues to detect deception. Yet few studies have explored this thesis in great detail. This thesis suggests that because polygraph examiners routinely observe the behavior of subjects undergoing polygraph examinations, polygraphists may inadvertently have learned to evaluate communication to a degree whereby they may effectively judge the veracity of a subject before he undergoes a mechanical evaluation. Several studies tend to document this.

The Ability of Polygraphists To Detect Deception By Evaluating Deceptive Cues

Horvath found that an analysis of verbal responses and observable nonverbal behavior during questioning prior to polygraph examinations disclosed a correlation between actual guilt or innocence and that later indicated by polygraphic analysis.<sup>115</sup>

Horvath's method entailed a three part evaluation based upon interviews with suspects of criminal activity prior to their polygraph examination. The interview consisted of a probing action to elicit verbal responses which was largely based upon the use of a Reid Control Questions Technique (RCQT). The RCQT is a structured interview that precedes the polygraph examination. The RCQT contains questions such as:

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<sup>115</sup> Frank S. Horvath, "Verbal and Nonverbal Clues to Truth and Deception During Polygraph Examinations," Journal of Police Science and Administration, Vol. 1, No. 2, 1973, pp. 138-152.

1) Did you do it? 2) Do you have any knowledge or suspicion of others who might have committed this crime? 3) Can you personally vouch for anyone whom you feel did not commit this crime? 4) Can you suggest any group or groups of people who could not have committed this crime? 5) How well do you think you will do in this examination? 6) What is your attitude toward taking the polygraph test? 7) Would you be willing to take a truth-serum test? 8) Have you ever been involved previously in an investigation similar to this one? 9) Have you ever thought about committing a crime like this? 10) Has anyone ever approached you to get involved in such a crime? 11) Do you think the crime really happened as it was reported? 12) If your fingerprints, footprints or presence were confirmed at the scene do you have a legitimate explanation? 13) How do you think the guilty person in this crime should be punished?

The second portion of Horvath's method involved coding spontaneous clues. The categories of these verbal clues included: 1) complaints about the equipment used in the polygraph examination or about personal health; 2) questions about polygraph procedures; and 3) requests to expedite the examination.

The last part of Horvath's system of analysis included coding nonverbal behavior into truthful or lying categories. Truthful categories included: appearance, talkative, good eye contact, direct answers, genuinely friendly, composed, lighthearted, relaxed and cooperative. Lying categories included: appearance, untalkative, poor eye contact, evasive answers, nervous bodily movements, nervous facial movements, scared, over-friendly and uncooperative.

Horvath used this method to evaluate suspects prior to polygraph examinations and based upon comparison with later mechanical results, accurately, predicted 94% of truthful suspects and 84% of lying <sup>116</sup> suspects.

Barland appears to re-enforce Horvath's findings. He reported that a polygraph examiner correctly predicted deception at a 89.5% accuracy rate by observing the pre-test behavior of subjects.<sup>117</sup>

Reid and Inbau, in a discussion of the polygraph technique, observed several symptoms among lying subjects.<sup>118</sup> They noted that lying subjects are normally not anxious to take the polygraph examination. In a five year study, they found that none of the 486 verified lying subjects had requested to take a polygraph examination.

More directly related to this study, they found that lying subjects often appeared very worried and highly nervous. The nervousness was manifested in several ways. For example, acting aggressively, having a resentful attitude, appearing in a shocked condition, being evasive and refusing to look the examiner in the eye was often characteristic of deceptive communicators.<sup>119</sup>

Link also noted that polygraphists and criminal investigators

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<sup>116</sup> Ibid.

<sup>117</sup> Gordon H. Barland, "Detection of Deception in Criminal Suspects," Dissertation Abstracts International, 1975, pp. 3083B-3084B

<sup>118</sup> John E. Reid and Fred E. Inbau, Truth and Deception: The Polygraph Technique, (Baltimore: The Williams and Wilkins Co., Publishers, 1977) p. 293.

<sup>119</sup> Ibid. p. 294.

and polygraph examiners have learned through experience to evaluate nonverbal behavior for clues to deception.<sup>120</sup>

The lack of additional literature concerning the ability of polygraph examiners to detect deception through evaluation of clues emitted in the multiple channel leaves many unanswered questions. First, it should be pointed out that the only literature found concerning the ability of polygraphists to detect deception suggests that they are effective in this endeavor. Other literature concerning polygraphists appears more oriented toward physiological areas of research (for example: Podlesny and Raskin,<sup>121</sup> Barland and Raskin,<sup>122</sup> Holmes and Bennett,<sup>123</sup> Cutrow, et. al.,<sup>124</sup> and Lykken<sup>125</sup>). Moreover, the lack of an investigation similar to this study poses the question of whether

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<sup>120</sup> Frederick C. Link, "Behavior Analysis In Interrogations," Military Police Law Enforcement Journal, Vol. III, No. 4, Winter 1976-1977, p. 16.

<sup>121</sup> John A. Podlesny and David C. Raskin, "Physiological Measures and the Detection of Deception," Psychological Bulletin, Vol. 84, No. 4, 1977, pp. 782-799.

<sup>122</sup> Gordon H. Barland and David C. Raskin, "An Evaluation of Field Techniques in Detection of Deception," Psychophysiology, Vol. 12, No. 3, 1977, pp. 321-330.

<sup>123</sup> David S. Holmes and David H. Bennett, "Experiments To Answer Questions Raised By The Use of Deception in Psychological Research," Journal of Personality and Social Psychology, Vol. 29, No. 3, 1974, pp. 358-367.

<sup>124</sup> Robert C. Cutrow, Arthur Parks, Nelson Lucas, and Kathryn Thomas, "The Objective Use of Multiple Physiological Indices in the Detection of Deception," Physophysiology, Vol. 9, No. 6, 1972, pp. 578-588.

<sup>125</sup> David T. Lykken, "The Detection of Deception," Psychological Bulletin, Vol. 86, No. 1, 1979, pp. 47-53.

polygraphists can detect deception when variables are controlled in the experimental dyad. Although the literature indicates that polygraphists should be proficient at detecting deception, these studies pose some methodological deficiencies. For example, Barland and Horvath's studies appear to be based on the performance of one polygraph examiner and not on a collective group of examiners.

#### The Correlation of Machiavellianism Traits to Detecting Deception

As mentioned briefly in the review of the literature, a few previous studies have explored the relationship of Machiavellian traits of deceivers and observers of their deception in various experiments.

Overall, Machiavellian studies suggest that a difference exists between persons judged high in Machiavellian traits and those judged low in Machiavellian traits.<sup>126</sup> Although the major difference in "high Machs" and "low Machs" is believed to be that high Machs manipulate people for their own advantage better than low Machs, other factors have been found that relate directly to detecting deception. These are:

1. Low Machs are less active in pressure situations than are high Machs.
2. High Machs maintain eye contact longer in deceptive exchanges than do low Machs.
3. High Machs maintain the ability to lie longer before confessing than do low Machs.

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<sup>126</sup>Richard Christie and Florence L. Geis, Studies in Machiavellianism, (New York and London, Academic Press, Publishers, 1979) pp. 1-10.

4. High Machs control stressful situations better than low Machs.<sup>127</sup>

Although not all deception studies have explored the influence of Machiavellian traits, most researchers agree that it is necessary to explore personality traits of persons used as deceivers. Several studies have done this by measuring the difference between the nonverbal behavior of deceivers in terms of stress and anxiety.

Whereas stress and anxiety are synonymous, their relationship to Machiavellianism is less defined. However, Christie and Geis suggest that high Mach subjects are generally rated as appearing less anxious than low Mach subjects.<sup>128</sup>

#### Summary

In conclusion some disagreement among researchers was evident in this review of the literature; which showed several different viewpoints on detecting deception and highlighted some problems with deception studies. Disagreement among researchers ranged from the complexity of discerning meaning from evaluating nonverbal communication to identifying the channel that provides the best clues for deceptive leaks. The review also identified several variables, all of which may not have been controlled in previous experiments.

The empirical evidence obtained from the investigations of deception and related studies suggest:

1. Meaning associated with nonverbal communication and human

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<sup>127</sup>Ibid, pp. 73-294.

<sup>128</sup>Ibid, p. 69.

communication theory can result in an understanding of judgments of effect when they are coded prior to being exposed for evaluation in the experimental dyad.

2. Nonverbal indicators of deception have been documented in previous deception studies and evaluation of deceptive exchanges should result in identification of these indicators.

3. Studies tend to document that verbal and nonverbal clues to deception work conjunctively and therefore the multiple channel mode of evaluation may be the most effective in judging behavior. Yet previous studies tend only to correlate these and not produce relative findings of observer accuracy. Studies that disagree with the theory that the multiple channel is the best system for evaluation tend to be antiquated and possess methodological deficiencies.

4. Several variables were identified that must be controlled in deception studies. These include: familiarity, level of information and information overload.

5. Polygraph examiners purport to be proficient at detecting deception through evaluations of the multiple channel mode. However, no empirical evidence exists that would confirm or deny this contention. Yet, there are questions that could be surfaced that demonstrate the lack of research in this area. For example, is it possible for polygraphists, who observe behavior as a method of detecting deception, to become victims of information overload and/or distraction and therefore become victims of low accuracy rates in deception experiments?

6. An examination of Machiavellianism traits of deceivers may

explain accuracy rates of observers and assist to select deceivers who are good liars.

The preceding findings necessitate additional investigations of deception. As noted in the first chapter of this thesis, polygraph examiners may provide a guide by which other judgmental accuracy rates may be measured. Conversely, it may be discovered that despite some credit otherwise, polygraph examiners may fall within the purview of other observers of deception who judge deception only at the chance level.

Additionally, the multiple channel mode of evaluating deceptive communications, which was explored earlier this year by Ekman and Friesen, has not been tested to judge the accuracy rate it will provide in judging attributions of truth and deception. Will this method of evaluating communication result in deception being detected at above the chance level?

Or, will some of the other variables of this study serve to explain the rate of detection. For example, do grade-point-averages and/or sex of the observer correlate with judgments made from multiple channel evaluations?

This research will attempt to answer these previously unasked questions.

The methodology which will be used to investigate these questions, as well as the hypotheses and research questions will be explained in the next chapter.

## Chapter III

### METHODOLOGY

This study examined the effectiveness of the multiple channel as an instrument in the detection of deception. Additionally, it will attempt to determine the accuracy of polygraphists to detect deception when they are allowed to evaluate deceptive behavior through multiple channels. Furthermore, it will compare the accuracy rate of journalism majors (trained observers) and untrained observers to detect deception when they are allowed to evaluate deceptive behavior through multiple channels.

The overall lack of a study that closely parallels this endeavor prompts several questions. For example, will an evaluation of the Machiavellian traits of deceivers assist to explain why some people are good liars and other people bad liars? And, will allowing observers to evaluate deceptive behavior through multiple channels serve to increase the accuracy rate at which they detect deception?

#### Purpose and Null Hypotheses

As explained in the preceding two chapters of this thesis, the purpose of this investigation was to devise a series of systematic experiments that will lead to a better understanding of deceptive communications.

Specifically, this investigation focused on two facets of multiple channel effectiveness in the detection of deception: (a) accuracy differences of trained and untrained observers; and (b) Machiavellian traits of deceivers. Such differences would have indicated an obvious slant toward selected training of observers, but the patterns would have had to have been consistent to have evidence of such a change. Therefore, the two specific null hypotheses of this investigation, which suggested no differences between trained and untrained observers, and no differences for persons with extreme Machiavellian traits, were:

1. No significant differences will be found between trained and untrained observers in the detection of deceptive behavior through multiple channels.
2. No significant differences will be found between people with high Machiavellian traits and people with low Machiavellian traits.

To compare the differences for trained and untrained observers and for deceivers with high and low Machiavellian scores, and to determine the acceptance or rejection of the two null hypotheses, answers were sought for ten research questions. The answers to the first four research questions indicated the variations between trained and untrained observers, and were the basis for the acceptance or rejection of the first null hypothesis. The last six questions focused on the Machiavellian traits of the deceivers used in this investigation, and provided a guide for the acceptance or rejection of the second hypothesis. Specifically, this investigation attempted to answer these ten research questions about deception through multiple channels:

1. To what extent did the multiple channel mode of evaluation produce higher accuracy rates among observers in the detection of deception?
2. To what extent are polygraph examiners more proficient at detecting deception?
3. What percentage of observers are cognizant of the theory of detecting deception by evaluating human behavior and are these people more adept at detecting deception than people who are unaware of the theory?
4. To what extent are journalism students more proficient at detecting deception than are untrained students?
5. Does an examination of the Machiavellian traits of deceivers assist to explain why some people are good liars?
6. Does an examination of Machiavellian traits of deceivers assist to explain why some people are bad liars?
7. Do low Mach persons emit more clues in deceptive exchanges than persons high in Machiavellian traits?
8. Will low Mach persons be judged more accurately in observations of deception than persons high in Machiavellian traits?
9. Does the sex of the observer serve to explain accuracy rates rendered?
10. Are student observers with higher grade-point-averages better judges of deception than those with lower grade-point-averages?

Procedure

An experiment was designed to investigate if evaluations of the multiple channels of deceivers would result in observers detecting deception above the chance level. The experiment was accomplished by the use of videotape excerpts from separate staged interviews. The videotapes included the use of confederates who were judged high in Machiavellian traits and persons judged low in Machiavellian traits. The experiment then attempted to determine the ability of trained observers (journalism students), polygraphists, and untrained observers to detect deception.

From this experiment, each observer (S) produced a detection of deception score (hereafter DDS) that reflected his or her ability to detect deception and honesty. A SPSS computer program was arranged that included transferring S's written responses of judgment to computer readable forms. This method allowed for cross-tabulation of DDS with other variables of the study.

Variables of the Study

Data was generated from this experiment by assigning variables. The assigned variables were sex and grade-point-average. The independent variable was the "refresher" training provided for journalism students in order to help them detect deception.

The remaining variables of the study, familiarity and level of information, were controlled. This method allowed for scores of observers to be correlated by deceiver and also allowed for an examination of the Machiavellian hypothesis.

Initial Pilot Project

A pilot project was designed and conducted to investigate the overall concept of this thesis and to determine potential problems of the experimental design. Specifically, an experiment was devised to investigate if deception and honesty could be detected by having subjects evaluate clues to deception emitted by the multiple channel. The experiment encompassed the use of videotape stimuli from two separate staged interviews.

Two confederates were selected to participate in the interview process that was videotaped. One confederate was selected due to being considered a "low-stress" person who would conceal his emotions and nonverbal communication well. The other confederate was selected because he was considered a "high-stress" person who would be very emotional and would emit an array of deceptive clues.

The confederates agreed to complete a survey which contained ten statements about common issues on the campus of the University of Mississippi. A seven point differential (Likert) scale permitted the following responses: Strongly Agree; Agree; Somewhat Agree; Neutral; Somewhat Disagree; Disagree; and Strongly Disagree. After the surveys were completed, they were checked to determine an issue in which both confederates possessed strong convictions. Review of the surveys indicated that one confederate was in strong agreement to boycott the Olympics and the other confederate was in strong disagreement to boycott the Olympics. Therefore, this issue was selected to be the subject of the interview that would be videotaped. The confederates were not told

in advance of the interview what the topic would be. Therefore, responses during the interview would be spontaneous. The selection of a topic in which both confederates possessed strong convictions allowed for the best possible nonverbal clues which were later coded and edited for use in the experiment.

During the course of the interview, both subjects were asked to express their feelings regarding the Olympic boycott and were then asked to express their dishonest views regarding the boycott.

After the interview, which was videotaped, the tape was reviewed and coded for signs of deceptive leaks and nonverbal clues to deception. The tape was then edited into short (10 - 15 second) excerpts with 10 seconds of blank space between each segment to allow for a response from observers when the tape was presented. Each excerpt captured a full body shot of one of the confederates making a statement about the boycott. The tape was arranged in a random order of lying and truthful responses. One confederate appeared in the videotape six times and the other confederate appeared in the tape four times. Coding did not allow for a balance of appearances by the confederates because of lack of an additional acceptable shot of one of the confederates. The lying and truthful segments numbered five each.

A questionnaire was designed to record subject's (N=37) feelings toward the same issues asked of the confederates. This was done to determine if any biases existed from the students about the issue discussed in the videotape. Additionally, students were asked if they knew the confederates, how well, and how they perceived their credibility.

The edited tape was presented on a playback machine to a graduate public relations class and to an undergraduate magazine editing class. These two classes were used as the control group. The nature of the study was explained to these classes, and information about detecting deception was provided.

The tape also was presented to an undergraduate advertising class, which served as the treatment group. The group was provided only with instruction for completing the experiment and were not afforded any information about detecting deception.

Subsequently, each group was allowed to view the videotape and render judgments of deception or honesty.

As predicted, journalism majors and students enrolled in journalism classes accurately judged deception above the chance level. Analysis of the data indicated that 71.11% of both groups accurately detected deception and honesty when confronted with it.

A second hypothesis of the study, which predicted that training controlled in the experiment, would increase the accuracy of student's ability to detect deception, was rejected. A t-test was administered to determine if significance was present in the difference of the control and treatment groups to detect deception. Significance was not present at the  $p < .05$  level. The similarity between the performance of the groups can also be evidenced by comparing other statistical data. The control group registered 72.19% correct responses and the treatment group registered 69.28% correct responses.

To determine the impact of variables generated by this study (bias,

perceptions and familiarity), a cross-tabulation method was planned and implemented into the SPSS computer program during analysis of the data. The Chi Squares produced by this program revealed that the variables were not significant. Other independent variables of the study (sex, grade-point-average of students and race) explored by the Chi Square method also were not significant.<sup>1</sup>

In explaining the results of this study, it is suggested that journalism students detected deception above the chance level. Yet, no other group was tested in order, for results to be compared. The exploration of polygraphists and students who are unfamiliar with human communication theory, as detectors of deception by evaluating the multiple channel, should provide a better insight into how well journalism students actually detect deception.

More important, the pilot project identified several areas where improvements were required in the experimental design. Specifically, a systematic method needed to be employed in the selection of confederates by stress level, improvements were required in the videotaping process, and the length of the excerpts required expanding.

#### Videotape Stimulus and Experimental Design

Prior to the preparation of the videotape stimulus, a survey (Appendix A) which was designed to gather information about personality traits, was administered to potential deceivers. The survey was

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<sup>1</sup>Childers.

administered for two reasons. First, gathering data on potential deceivers allowed for some degree of selectivity in choosing persons who would make "good" and "bad" liars. Specifically, this allowed for an investigation of the Machiavellian hypothesis. Secondly, the results of the survey assisted in the subsequent coding of deceptive and honest behavior, as an analysis of personality traits helped explain the high stress or low stress behavior of the deceivers.

The seven page questionnaire encompassed administering two separate personality inventory forms to graduate students enrolled in journalism courses at the University of Mississippi during the fall semester, 1980. The first questionnaire was a Likert-Type Mach Scale (Mach IV) that has previously been used and investigated by Christie and Geis.<sup>2</sup> The scale on the questionnaire was composed of 10 items which were keyed to endorsement of Machiavellian statements and 10 items were keyed in the opposite direction. This counterbalancing was designed to minimize the effects of indiscriminate agreement or disagreement with items.<sup>3</sup>

The second questionnaire employed was designed to measure introversion and extroversion.<sup>4</sup> This questionnaire contained 66 items on which the potential deceivers were asked to indicate their agreement or disagreement by answering yes or no. The questionnaire measures

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<sup>2</sup>Richard Christie and Florence L. Geis, Studies in Machiavellianism, (New York and London: Academic Press, Publishers, 1970) pp. 10-34.

<sup>3</sup>Ibid, p. 16.

<sup>4</sup>Hans J. Eysenck and Sybil B.G. Eysenck, Personality Structure and Measurement, (San Diego: Robert R. Knapp, publisher, 1969) pp. 141-149.

introversion and extroversion based upon responses pertaining to impulsiveness, repression, and sociability. A high score on the test on those items which pertained to introversion-extroversion explicitly, indicates the characteristics of an extrovert and a low score an introvert.

As stated, the questionnaires were administered to students enrolled in two journalism courses. However, it was necessary to employ a method whereby the potential deceivers would render responses that would mirror their true personalities. In order to accomplish this, the students were administered the questionnaire during their regularly scheduled classes and told that the questionnaire was simply a research effort being conducted by the researcher and that their responses would be anonymous. However, the questionnaires had been inconspicuously coded for later identification. After the questionnaires had been handed out to the students, the researcher quickly sketched a diagram of the seating arrangement and matched the coded questionnaire number to the proper student. After the students completed the questionnaires, they were informed of the true nature of the research and given the opportunity to retract the questionnaire. However, no student invoked this privilege.

The next phase of the selection process involved evaluating the questionnaires. The Mach IV test was evaluated in the following manner. A constant of 20 was first added and then each question was evaluated separately. The method of evaluating the questions encompassed first determining whether the question was pro Mach (+) or noncharacteristic of a Mach (-). If the question was positive, the person was awarded up

to seven points based upon his response. For example, a score of one would be awarded to a response of strongly disagree, four for neutral, and seven for strongly agree. Conversely, a negative statement was graded just the opposite. For example, one was awarded for strongly agree, four for neutral, and seven for strongly disagree. After each question was graded, the total points were tallied and the constant of 20 added, thus producing the individual's score.

Theoretically, the neutral point for this test was 100. For example,  $20 \text{ (items)} \times 4 \text{ (points awarded for neutral responses)} + 20 \text{ (constant)} = 100$ . Therefore, the minimum score possible was 40 and the maximum score was 160.

The second questionnaire was evaluated by scoring items characteristic of introverts and extroverts. Several questions, which had no bearing on those characteristics, were not evaluated. However, they were retained on the questionnaire as "dummy" questions. The number of useable questions numbered 50 and each person was awarded a score based upon his responses to the extroverted questions.

Because much disagreement exists among researchers concerning what personality tests actually measure, the test results were treated statistically for correlation. A Spearman Rank-Order Correlation test was used for this purpose. The results of this test and the scores recorded by the students are reported in Table 1.

Because there was low positive correlation between the two tests in what they measured, the Eysenck test was discarded and the Mach IV test retained for use in selecting persons to be used as deceivers. The

Table 1  
PERSONALITY TEST RESULTS

Student Tested	Likert-Type Mach Test	Eysenck Test
S <sub>1</sub>	97	76
S <sub>2</sub>	77	52
S <sub>3</sub>	99	66
S <sub>4</sub>	100	56
S <sub>5</sub>	95	64
S <sub>6</sub>	73	34
S <sub>7</sub>	75	54
S <sub>8</sub>	100	38
S <sub>9</sub>	100	56
S <sub>10</sub>	86	30
S <sub>11</sub>	85	50
S <sub>12</sub>	90	66

Rho = .45

Mach IV test was retained because it comes closer to identifying the most discriminating Machiavellian characteristics. Additionally, the literature suggested that the Eysenck test attempted to measure sociability. The nature of this type question may have resulted in the evaluation reflecting the respondent's desire to meet social standards instead of their true personality. Because the Mach IV test did not contain these deficiencies, it was used for determining the Machiavellian tendencies of the potential deceivers.

Consequently, persons were selected as deceivers who had scored at either extreme (high or low) on the test. However, one person was selected who scored in a neutral category. This was done primarily to re-enforce the categories, as theoretically a person who scored in the middle category should be detected in deceptive exchanges more often than high Machs, but less often than low Machs. The selection was based upon scores recorded by students on the Mach IV test. For example, a person scoring in the low 70's was considered a low Mach and a person who scored in the high 90's up to 100 was considered a high Mach. The person used in the middle or neutral category scored 85.

Because it was reported earlier that the range on the Mach IV test is from 40 to 160, with 100 being neutral, questions were asked at this point by committee members, concerning the use of a person who has scored in the high 90's or 100 on the test as a high Mach person. Some literature existed which clarified this. First, Christie and Geis offered several points concerning the use of scores. In one report, they pointed out that the average score on the Mach IV test averages around

90.<sup>5</sup> In another investigation, the mean score for high Machs was 113 and for low Machs it was 95.<sup>6</sup>

The current study seemed to possess an even greater range between those considered high stress and low stress than those studies reported by Christie and Geis. Yet, the scores of the current study were somewhat lower than those reported in previous studies. Two points may serve to explain this difference. First, the study in which the average score for high Machs was 113 and low scores averaged 95, the Mach IV test was administered in the spring semester, 1966 to male undergraduate students at New York University. The fact that this test was administered during the decade of the '60's, when the nation was more turbulent because of the Vietnam War and civil disorder, may have been responsible for male undergraduates scoring higher on the Mach IV test. Additionally, the differences between New York University and The University of Mississippi also may have accounted for some stress difference. However, this would be more difficult to measure accurately. Moreover, the fact that undergraduates were tested in the previous study, whereas the current study tested graduate students just beginning their first semester in graduate school, may have resulted for some difference in the degree of stress. Therefore, the scores attained on the Mach IV test were considered adequate to select both "good" and "bad" liars.

Because the scores on the Mach IV test were somewhat evenly

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<sup>5</sup> Richard Christie and Florence L. Geis, Studies in Machiavellianism, (New York and London, Academic Press, Publishers, 1970) p. 94.

<sup>6</sup> Ibid, p. 239.

distributed whereby four persons each scored in the high, low or neutral category, the major consideration for selecting persons to be confederates in this study was based upon the availability of the persons tested, coupled with their willingness to participate in the experiment.

From the twelve persons surveyed, five agreed to be videotaped for subsequent presentation to observers. Of the five persons selected, two persons represented both the high and low Mach categories. Additionally, a fifth person was selected to represent the neutral category.

After selection of the confederates, a method was designed to select issues they would discuss during the videotaping process. Specifically, a survey was designed for this purpose (Appendix B). The survey consisted of 12 statements, mostly political in nature, and allowed each individual to record his/her feelings toward that statement on a Likert scale. Each confederate was asked to complete the survey prior to the videotaping session. The confederates were informed that the statements listed on the survey would be among those selected as issues for discussion during the recording session. However, they were not informed of any single specific issue they might be required to discuss.

The topics selected for incorporation into the survey were selected for several reasons. First, later research in this thesis required administering the survey to students at the University of Mississippi and polygraph examiners. This was done in order to gauge their opinions on the issues and thereby control any bias that might exist. Consequently, it was considered important to identify some "central" issues in which students and polygraph examiners would be familiar. Second, the issues

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selected were largely based upon rhetoric from the 1980 presidential campaign, of which many issues had recently been reported in the headlines and used as lead stories in the media. Therefore, it was felt that such wide publicity may have resulted in the participants in this study already having formulated some opinions regarding these issues.

After the survey had been completed by the confederates, they were reviewed by the author and from each questionnaire, four topics were selected for each confederate to discuss in subsequent videotaping. The selection of the topics was based upon each confederate's response on the Likert scale. Moreover, topic selection was based on the confederate's degree of conviction toward a specific issue. Where possible, the issue was selected based upon the confederate's strong agreement or strong disagreement with a statement. This was done in order to insure the confederate would not be bland during the interview, but, conversely would show emotion toward the issue being discussed. Therefore, no issue was chosen for discussion where the confederate had indicated that he was neutral toward that issue.

After selection of the issues to be discussed, coordination was made for the videotaping process. Chris Berry, who was the business manager for the university's television station, agreed to operate the camera during the interview situations. Additionally, he agreed to participate in a portion of the study heretofore unrevealed. In the review of the literature, a few researchers suggested that more deceptive clues might be captured by videotaping communicators who were unaware they were being videotaped. Although some disagreement existed concerning this

contention, an opportunity was found that allowed for this to be done in the current study. Therefore, it was decided to proceed with this plan and later determine, by coding nonverbal behavior of the confederates, if knowledge of the videotaping process would have a significant impact upon the behavior of the confederates. Additionally, it was felt this method would circumvent any occurrences where the deceivers might intentionally interject incongruent messages. This was important to control because all deceivers were knowledgeable concerning human communication theory and could conceivably attempt to purposely mislead observers.

The recording of the confederates without their knowledge was accomplished as follows. A check with Berry indicated that the mini-cam that would be used for videotaping did not possess a red light that would alert the deceivers that they were being recorded. Therefore, each confederate was told that he would have one recording session, which would include his discussion of issues in which he would be honest and then deceptive, that would be "just for practice" and would not be recorded. However, the confederates were told the cameraman would be adjusting the camera during practice and this was being done for them to become acclimated to looking into the camera and not being distracted by the cameraman's action. In reality, Berry started the camera a few seconds before the confederate was asked to respond to the "practice question."

As stated, five confederates were selected to participate in the interviews. Although each confederate was selected based upon his score

on the Mach IV test, the confederates also represented a good cross-sectional view of the United States. For example, Frank Toner, who was evaluated in the neutral category with a score of 85, had recently retired from a police agency in New York and moved to Mississippi to work on his Master's degree. He was a veteran of World War II and a graduate of Syracuse University.

Tim Viner and Dani Smith composed the low Mach duo, and they had scored 73 and 75 on the Mach IV test, respectively. Tim had graduated from a Bible College, had taught at a small bible college in Senatobia, Mississippi, and had worked for a church group overseas. Dani recently received her Master's degree from the University of Mississippi and was an instructor in the Department of Sociology. Her previous work experience included positions as a secondary school teacher. She also worked for two years on a Mississippi newspaper as a staff writer and composer.

The high Mach confederates selected were Mark Barden and Sandy Grych. They registered scores of 99 and 100, respectively on the Mach IV test. Both had graduated from Oral Roberts University, where they had majored in telecommunications.

The varied backgrounds these persons possessed, coupled with the fact that their composition allowed for both men and women to be evaluated in deceptive exchanges, was responsible for adding a new dimension to this study because not just "typical" undergraduate students were used in the experimental design.

After coordination was made for the videotaping process, one final

adjustment was made prior to the actual videotaping. This was done to solve a potential problem. What would happen if the confederate "froze" when the camera started rolling? And, how could the length of the interview be controlled? To circumvent this, it was decided to use an interviewer who would not only start the interview by asking a question, but also would relax the confederate by asking questions and thereby keep the confederate talking when the camera was rolling. Moreover, the interviewer could control the length of the interview by asking questions or concluding the interview, as necessary.

Cindy Till, an undergraduate Radio/Television major and a member of the University's television staff with experience in live interviews, agreed to participate in this experiment for the purpose of controlling the interview.

On the day the videotaping was scheduled, a large office in Farley Hall, the journalism building, was reserved for the purpose of taping the interviews. The office was arranged so the interviewer and confederate would be sitting in a "mock" interview situation. The camera placement in the room allowed for a full body shot of the interviewer and confederate.

When the confederates reported for the taping sessions, they were briefed on technical procedures and then told that one practice session would be conducted in which they would be asked to tell the truth regarding an issue and then another practice session would be conducted in which they would be asked to be deceptive regarding their true feelings on an issue. A separate issue was used for each session.

The interviewer started each session by asking the confederate a question from a prepared list (Appendix C). The confederate had been asked prior to the recording to attempt to speak about each issue for approximately one minute. However, the confederate was reassured that if he could not speak for one minute, the interviewer would intervene and ask a neutral question that would give him time to gather his thoughts and respond further.

As stated, a two body shot was used to start the videotaping session. After the question was asked, the camera panned in with a full body shot of the confederate. This full body shot of the confederate allowed for subsequent evaluation of multiple channels for clues to deception.

After the two practice sessions were completed, the confederate was asked to express his opinion on two additional issues. After taping the two final sessions, the confederate was asked if he were aware that the two initial "practice" sessions had been recorded. Out of the five confederates, four said they had no idea that the first two sessions had been recorded. The other confederate said she was aware she was being recorded from the beginning because she had previous experience working with a "mini-cam." After being briefed on the reason the sessions had been secretly recorded, all the confederates agreed that these segments could be used for subsequent evaluation.

After the videotaping was completed, the tapes were reviewed and coded for deceptive leaks and nonverbal clues to deception. Coding was based on the following categories:

1. Shrug emblem - a single movement that involves the smooth motion of the hands upward and outward with a twisting of the palm from face down to face upward.
2. Illustrators - hand movements which follow the rhythm or content of speech.
3. Manipulators - included self-manipulations (the touching of the body with the hands) and object manipulations (touching of an object with the hands).
4. Posture - included the number of postural changes.
5. Smiles - number of smiles.
6. Reaction time - reaction time to response.
7. Pauses - the number of pauses to search for words.

These categories were based upon distinct nonverbal clues to deception noted in previous investigations. For example, research indicated that deceptive communicators increase their postural shifts more often, engage in self-manipulations more, and gestures are more prevalent over other communications than are present in truthful exchanges.

These categories were used as a guide to evaluate the tapes to determine those sessions that were suitable for subsequent presentation to observers. However, additional factors were considered based upon previous research. For example, Baucher noted that two separate aspects should be considered in coding behavior. These were nonverbal information and total information. Nonverbal information closely paralleled the coding that was done in this experiment and involves

measuring exact behavior. The total information was simply a holistic estimate of nonverbal information that should be considered in coding behavior.<sup>7</sup> Because different Machiavellian types were evaluated in this study, it was considered important to rely on a holistic estimate as well as the results obtained from coding to accurately select those videotaped sessions that depicted clues to deception. This was particularly important when considering that low Machs often displayed few emotions on the surface, but their behavior changed drastically when confronted with stressful situations. Consequently, coding sometimes resulted in statistically incompatible data; however, a holistic evaluation coupled with a knowledge of the individual's personality helped to explain these differences.

Overall, the main objective of coding was to insure that nonverbal indicators to deception were present in deceptive exchanges, thereby giving subjects the opportunity for evaluation. Additionally, videotaped sessions in which the confederates were unaware that they were being videotaped were also reviewed. This was done to eliminate a possible deficiency in the study because some researchers suggest that deceivers emit more clues to deception when they are unaware they are being recorded. Actually, some disagreement existed on this issue. Rosenthal suggested that experimenter bias might be eliminated by using persons

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<sup>7</sup> Joyce E. Bauchner, David R. Brandt, and Gerald R. Miller, "The Truth/Deception Attribution: Effects of Varying Levels of Information Availability," in Communication Yearbook I, B.R. Ruben (ed.) New Brunswick, New Jersey: Transaction Books, Publishers, 1977), p. 234.

unaware of the research proposal.<sup>8</sup> Conversely, Gallo, Smith and Mumford noted that disclosing information about the research project did not have an effect upon the amount of conforming behavior that was produced.<sup>9</sup>

Because the possibility existed that either position could be correct, segments that included deceiver knowledge of the videotaping process and segments in which the confederates were unaware that they were being videotaped were used, as appropriate after the coding process. The coding process did not indicate any substantial difference in deceiver behavior among those sessions in which confederates knew they were being recorded and those in which they were unaware they were being recorded.

Although the coding process was used to select tapes for use in the subsequent experiment, it was readily apparent by holistic examination that deceptive clues exist in the videotaped sessions. For example, Frank Toner was first asked to be truthful about an issue and later was asked to lie about his true feelings regarding another issue. In the deceptive session, Frank played with the "arms" of his glasses, clicking them back and forth throughout the interview.

After coding and holistic evaluation, ten acceptable segments were selected for presentation to observers. Each segment was edited onto a master tape. Each segment depicted the interviewer asking the confederate

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<sup>8</sup> Robert Rosenthal, "On Social Psychology of the Psychological Experiment: The Experimenter's Hypothesis as Unintended Determinant of Experimental Results," American Scientist, Vol. 51, 1973, pp. 268-283.

<sup>9</sup> Phillip S. Gallo, Shirley Smith, and Sandra Mumford, "Effects of Deceiving Subjects Upon Experimental Results," Journal of Social Psychology, Vol. 89, 1973, pp. 99-107.

a question and then showed a full body shot of the confederate responding to the question. Each segment lasted about one minute and twenty seconds of which approximately one minute was devoted to the confederate responding to the question. In those sessions in which the confederate had spoken in excess of one minute, edits were made to the tape. This was done to allow for a degree of consistency in the amount of information that the observers would receive. Additionally, ten seconds of blank space were edited between each segment to allow for a response time for observers after viewing each segment.

A research questionnaire (Appendix D) was designed that served as an instrument to record data on the observers and to provide an answer sheet for recording evaluations when the tape was presented. The composition of the questionnaire first required observers to evaluate the topics on a Likert scale that the confederates would discuss. This was done to account for any biases the observers might possess toward the issues, thereby affecting their ability to accurately detect deception and honesty. Additionally, student observers were asked if they knew the confederates and how they perceived their credibility. Again, this was done to account for any familiarity that might exist among observers and confederates. Demographic information was also requested from each group of observers. This was done to allow for a subsequent statistical correlation of the data. Finally, the last page of the questionnaire listed each videotape situation and offered space for observers to respond after viewing the videotape session.

Pilot Project #2

A pilot project was conducted to determine if the videotapes and research questionnaire would collect the desired data. Arrangements were made to show the videotapes to three separate journalism classes. These classes were selected because they were small in size (about 15 students per class) and this would allow observers to be in close proximity to the video playback machine.

The student observers were first asked to respond to the general questions pertaining to the issues being discussed, to indicate their level of familiarity with the individuals discussing the issues, and to furnish information for demographical purposes. After the students had completed this section of the questionnaire, they were read information concerning the nature of the study and before going through procedures for completing the questionnaire, and "refresher" training concerning the theory on detecting deception by evaluation of nonverbal communication (Appendix E). The training was provided for two reasons. First, journalism students (which included students majoring in the print and broadcasting sequences) would later be used as a control group by which to compare the rate of detection of deception with other students enrolled in non-journalism courses. It was felt that theoretically, at least, journalism students should detect deception at a higher accuracy level than non-journalism students because they had previously been exposed to some courses in human communication theory. Normally, journalism students experience some instruction on deceptive behavior through various journalism courses; such as beginning reporting, advanced

reporting, and introduction to mass communication. Therefore, it was theorized that the training would engender higher detection rates of prevarication. However, it should be noted that the training was extremely limited. This was purposely done to prevent the introduction of potential intervening variables that might be interjected had the training been more detailed and structured.

After completion of the training, the playback machine was turned on and each student was allowed to view each excerpt only once and then asked to mark "honest" on the questionnaire if he thought the person was being truthful and to mark "deceptive" if he thought the person was lying.

The questionnaires were collected and coded in order to be transferred onto computer readable forms. A SPSS computer program was designed to allow for the data to be analyzed statistically.

The analysis of the data for the pilot project was mainly restricted to the examination of percentage rates rendered in judgments of deception and honesty. This was done because even a limited analysis would provide sufficient information to evaluate the efficiency of the videotape stimulus.

Overall, the data revealed that observers (N=44) accurately detected deception and honesty at a rate of 52.8%, or slightly, but not significantly, above the chance level. A further analysis of this revealed that observers detected the deceptive excerpts at a rate of 45.9% and detected honesty 59.6% of the time. In examining the difference between the detection of high Machs and low Machs, it was found that low

Machs were detected at a rate of 53.4% and high Machs were detected 31.4% of the time. The neutral category person was accurately judged in both honest and deceptive exchanges at a 94.3% level.

The results of the pilot project did not reveal any major deficiencies in the videotape stimulus or research questionnaire. In general, the findings of the pilot project, relative to the low and high Mach theory, seemed to lend some degree of support to the hypothesis that high Machs would be detected at a lower rate than would low Machs. Conversely, the data did not lend any support to the contention that journalism students would detect deception above the chance level. Nor did the results support the neutral Mach category because the person who scored in the neutral category was judged more accurately than either high or low Mach persons.

This situation required the exploration of the ability of other persons to detect deception in order to answer several questions concerning the ability of persons to detect deception. The first phase of this was accomplished by testing the ability of polygraphists to detect deception solely by judging verbal and nonverbal clues to deception. Efforts were made to coordinate the testing of a group of polygraph examiners. A school was located that teaches the polygraph technique and agreement was reached for the school's participation in this experiment, contingent upon a promise of anonymity. Therefore, the name of the participating school has been purposely deleted from this report. Participants in the experiment ( $N=16$ ) included students enrolled in the course who had already completed their coursework and had had some

practical application in administering the polygraph test. Several instructors at the school also agreed to participate in the experiment.

On the day of testing, the same procedures were employed as had been previously used in the pilot project. However, prior to playing the videotape, the polygraphists were not exposed to training.

Subsequently, the videotapes were presented to journalism students enrolled in journalism classes at the University of Mississippi. The classes used included; beginning reporting, feature writing, photo-journalism, and magazine editing.

The videotape stimulus was also present to several non-journalism classes. These classes were not afforded training and were used as the treatment group.

After collection of the data, the questionnaires were coded, and information was transferred to computer readable forms. Also a cross-tabulation method was designed into the computer program which allowed for examination of the DDS against demographical data, such as age and sex.

The findings generated from analysis of the data collected in this experiment will be discussed in the next chapter of this thesis.

## Chapter IV

### FINDINGS

This study found that observers could detect deception above the chance level and that an investigation of the personality traits of deceivers provided clues that served to explain why some people are better liars than are others. The study also revealed that persons are not necessarily better judges of deception because of varied experience and training. Moreover, the study showed that no major differences existed in observer judgments based on variables, such as sex and age.

The findings were based on an experiment that was designed to determine if observers would be able to evaluate clues of deceptive behavior in order to perceive deception. The experiment also investigated the Machiavellian traits of the deceivers to determine if persons low in Machiavellian traits would be detected more in deceptive exchanges than would persons high in Machiavellian traits. Judgments of honesty and deception were made by having observers witness ten randomly ordered videotaped segments of truthful and deceptive verbal conversations. These judgments provided the basis for acceptance or rejection of the null hypotheses.

The first null hypothesis contended that no difference would be found between trained and untrained observers in the detection of

deceptive behavior through evaluation of multiple channels. Before offering a conclusion as to the acceptance or rejection of this hypothesis, it was first necessary to provide various statistical data and results of statistical tests.

Observers (N=289) were asked to render judgments as to the veracity of a communicator. The accuracy rates at which observers detected deception and honesty are reported in Table 2. To determine the correlation between the ability of different observer groups to detect deception, a Spearman Rank-Order Correlation test was used. In review, it was theorized that journalism students and polygraph examiners have some degree of training in human communication theory and human behavior. As a result, these two groups might detect deception at a higher accuracy level than non-journalism students. The percentages of detection rates did not show this. Specifically, journalism student observers (N=122) detected deception and honesty in only 60.24% of the situations, whereas polygraph examiners (N=16) and non-journalism students (N=151) registered accuracy rates of 72.52% and 71.27%, respectively.

One measure of similarity among the observers was indicated by the somewhat high rank-order correlation. Results of the rank-order correlation showed there was a high positive correlation between the ability of journalism and non-journalism students to detect deception ( $\text{Rho} = +.95$ ). Additionally, the high rank-order correlation of +.71 was found between the ability of polygraphists and non-journalism students to render accurate judgments. And, the rank-order correlation of polygraphists and journalism students to render accurate judgments was

Table 2  
PERCENT OF CORRECT RESPONSES BY OBSERVER CATEGORY

Treatment Stimuli Presented	Polygraph Examiners (N=16)	Journalism Students (N=122)	Non-Journalism Students (N=151)
T <sub>1</sub> - Low Mach, Viner Deceptive	75.0	68.9	81.5
T <sub>2</sub> - Low Mach, Smith Honest	100.0	93.4	95.4
T <sub>3</sub> - High Mach, Grych Deceptive	81.3	32.0	49.7
T <sub>4</sub> - High Mach, Barden Deceptive	56.3	35.2	49.0
T <sub>5</sub> - Low Mach, Viner Honest	37.5	45.9	56.9
T <sub>6</sub> - Neutral Mach, Toner Deceptive	81.3	91.8	94.7
T <sub>7</sub> - High Mach, Barden Honest	75.0	45.9	67.5
T <sub>8</sub> - Neutral Mach, Toner Honest	81.3	81.1	86.1
T <sub>9</sub> - High Mach, Grych Honest	75.0	59.8	72.2
T <sub>10</sub> - Low Mach, Smith Deceptive	62.5	48.4	57.0
Percent of Totals	72.52	60.24	71.27

low positive ( $\text{Rho} = +.59$ ).

Another indication of the similarity among observers was revealed by a test of significance of difference between two proportions (z-test). The results from this analysis suggested that the groups were similar in their ability to detect deception. However, occasionally the groups showed significant differences in their abilities to accurately judge behavior in which high level Machiavellians were being deceptive.

Although this provided some insight in the ability of persons to detect deception, a more detailed investigation was required before accepting or rejecting the null hypothesis suggesting that no difference would be found between trained and untrained observers in the detection of deceptive behavior. This was done by examining other potential variables that could have had an impact on the ability of persons to detect deception. The variables examined included the grade-point-average of the observer (for students), the classification of student observers, whether the observer was knowledgeable of the concept of detecting deception by evaluating behavior, observer familiarity with the deceivers, and student major.

The percentages of correct responses by grade-point average of the observer are reported in Table 3. A rank-order correlation was done to determine if similarities existed among observers based on their grade-point-average. A high positive correlation was found in the ability of the two groups to detect deception ( $\text{Rho} = +.85$ ). However, a test of significance of difference (z-test) between each treatment group revealed that, on occasion, persons with lower grade-point-averages detected

Table 3  
PERCENT OF CORRECT RESPONSES BY GRADE POINT AVERAGE

Treatment Stimuli Presented	Under 3.0 (N=165)	Over 3.0 (N=67)
T <sub>1</sub> - Low Mach, Viner Deceptive	67.6	78.3
T <sub>2</sub> - Low Mach, Smith Honest	88.2	97.3
T <sub>3</sub> - High Mach, Grych Deceptive	57.9	36.8
T <sub>4</sub> - High Mach, Barden Deceptive	45.5	42.1
T <sub>5</sub> - Low Mach, Viner Honest	61.0	48.7
T <sub>6</sub> - Neutral Mach, Toner Deceptive	84.9	97.5
T <sub>7</sub> - High Mach, Barden Honest	64.5	44.4
T <sub>8</sub> - Neutral Mach, Toner Honest	86.0	81.4
T <sub>9</sub> - High Mach, Grych Honest	74.7	59.3
T <sub>10</sub> - Low Mach, Smith Deceptive	51.3	49.4
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Percent of Totals	68.16	63.55

deception at higher accuracy rates than did those persons with higher grade point averages.

An investigation also was made of the ability of students to detect deception based on their classification in school. The percentages of correct responses by student classification are reported in Table 4. Again, a rank-order correlation test was employed to determine if detection rates were similar in this category. The results, which indicate that detection rates were highly positively correlated with each other are reported in Table 5.

Table 5

RANK-ORDER CORRELATION RESULTS OF DETECTION  
BY STUDENT CLASSIFICATION

	Freshmen	Sophomore	Junior	Senior
Senior	.96	.95	.91	--
Junior	.96	.94	--	--
Sophomore	.97	--	--	--
Freshmen	--	--	--	--

When collecting data for this thesis, respondents were asked to indicate if they knew the theory of detecting deception by evaluating the nonverbal communication of the deceiver. These results are reported in Table 6. Although it may seem that a person would be more adept at

Table 4  
PERCENT OF CORRECT RESPONSES BY STUDENT CLASSIFICATION

Treatment Stimuli Presented	Freshman (N=15)	Sophomore (N=81)	Junior (N=98)	Senior (N=64)
T <sub>1</sub> - Low Mach, Viner Deceptive	80.0	82.7	70.4	73.4
T <sub>2</sub> - Low Mach, Smith Honest	100.0	96.3	94.9	90.6
T <sub>3</sub> - High Mach, Grych Deceptive	60.0	44.4	39.8	34.4
T <sub>4</sub> - High Mach, Barden Deceptive	46.7	42.0	37.8	50.2
T <sub>5</sub> - Low Mach, Viner Honest	66.7	59.3	45.9	54.7
T <sub>6</sub> - Neutral Mach, Toner Deceptive	100.0	97.5	89.8	90.6
T <sub>7</sub> - High Mach, Barden Honest	66.7	58.0	59.2	53.1
T <sub>8</sub> - Neutral Mach, Toner Honest	93.3	81.5	86.7	79.7
T <sub>9</sub> - High Mach, Grych Honest	73.3	67.9	67.3	60.9
T <sub>10</sub> - Low Mach, Smith Deceptive	46.7	55.6	58.2	48.4
<hr/>				
Percent of Totals	73.34	68.52	64.91	63.60

Table 6

PERCENT OF CORRECT RESPONSES BY PERSONS KNOWLEDGEABLE  
OF THE THEORY OF DETECTING DECEPTION

Treatment Stimuli Presented	Knowledgeable (N=129)	Not Knowledgeable (N=151)
T <sub>1</sub> - Low Mach, Viner Deceptive	77.5	75.5
T <sub>2</sub> - Low Mach Smith Honest	94.6	95.4
T <sub>3</sub> - High Mach, Grych Deceptive	45.7	43.0
T <sub>4</sub> - High Mach, Barden Deceptive	45.7	41.7
T <sub>5</sub> - Low Mach, Viner Honest	48.1	57.6
T <sub>6</sub> - Neutral Mach, Toner Deceptive	89.9	95.4
T <sub>7</sub> - High Mach, Barden Honest	62.8	54.3
T <sub>8</sub> - Neutral Mach, Toner Honest	80.6	86.1
T <sub>9</sub> - High Mach, Grych Honest	66.7	66.9
T <sub>10</sub> - Low Mach, Smith Deceptive	58.1	49.7
<hr/>		
Percent of Totals	66.97	66.56

detecting deception, this was not upheld with the results of this study. Specifically, a rank-order correlation between those observers who were knowledgeable of the concept and those who were unaware of it indicated a high positive correlation between both to detect deception ( $\text{Rho} = +.95$ ).

An investigation also was conducted to determine if accuracy rates between observers who were familiar with the deceiver would be different than rates by observers who did not know the deceiver. The correct responses by percentage for both groups are reported in Table 7. A z-test was conducted to determine if significance was present in the performance of these groups. Overall, the analysis revealed no significant differences for eight of the ten treatment groups. However, these vascillated which may suggest that familiarity is not a major factor in the ability of persons to detect deception and could have happened by chance.

The detection rates also were investigated by their relation to the major of the student observer. The percent of correct responses by major are reported in Appendix F. The rank-order correlation of these results, which revealed high positive correlation, are reported in Table 8.

Much of these results indicated that detection differences varied somewhat among the three groups studied. The lack of significant differences and the many similarities among the groups suggested that training, either gained through formal education or furnished immediately before evaluations of deception, did not have a major impact on the ability of persons to detect deception by evaluating clues to deception emitted through the multiple channels of the deceiver.

Table 7  
PERCENT OF CORRECT RESPONSES BY FAMILIARITY

Treatment Stimuli Presented	Familiar	Unfamiliar
T <sub>1</sub> - Low Mach, Viner Deceptive	55.6 (N=9)	76.3 (N=262)
T <sub>2</sub> - Low Mach, Smith Deceptive	96.6 (N=116)	93.0 (N=156)
T <sub>3</sub> - High Mach, Grych Deceptive	50.0 (N=10)	41.5 (N=261)
T <sub>4</sub> - High Mach, Barden Deceptive	50.0 (N=10)	42.5 (N=260)
T <sub>5</sub> - Low Mach, Vinear Honest	66.7	53.4
T <sub>6</sub> - Neutral Mach, Toner Deceptive	100.0 (N=8)	92.7 (N=245)
T <sub>7</sub> - High Mach, Barden Honest	60.0	57.9
T <sub>8</sub> - Neutral Mach, Toner Honest	87.5	83.7
T <sub>9</sub> - High Mach, Grych Honest	40.0	67.7
T <sub>10</sub> - Low Mach, Smith Deceptive	69.0	41.4
<hr/>		
Percent of Totals	67.84	65.01

Table 8

RANK ORDER CORRELATION RESULTS OF DETECTION  
RATES BY STUDENT MAJOR

	JOUR	RAD/TV	LIB ARTS	BUS	ED	CRIM	OTHER
JOUR	--						
RAD/TV	+.88	--					
LIB ARTS	+.95	+.84	--				
BUS	+.86	+.91	+.86	--			
ED	+.87	+.94	+.83	+.90	--		
CRIM	+.76	+.80	+.82	+.85	+.71	--	
OTHER	+.94	+.97	+.91	+.94	+.82	+.86	--

An investigation of the second null hypothesis, which contended that no significant differences would be found between people with high Machiavellian traits and people with low Machiavellian traits, also was done by examining the correct responses of the observers in their evaluations of deception. Moreover, treatments were consolidated and grouped into either low or high Mach categories. The results of observer detection by category are reported in Table 9.

Table 9  
DETECTION RATE BY MACH LEVEL OF DECEIVER

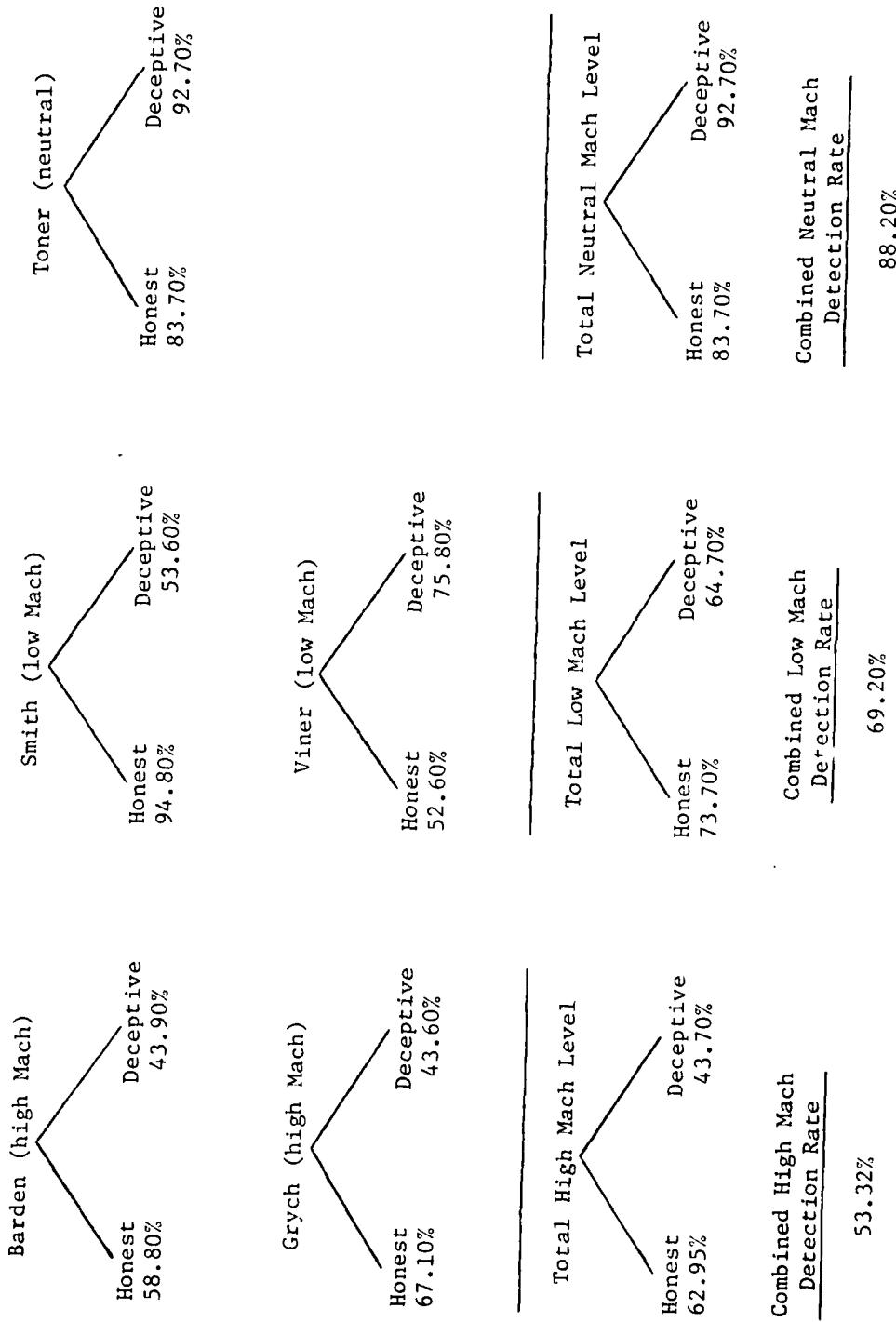
<u>Category Judged</u>	<u>Total Judgments</u>	<u>Correct Judgments</u>	<u>Percent Correct</u>
High Mach (H)*	577	364	62.9
High Mach (D)	578	253	43.8
Neutral (H)	289	242	83.7
Neutral (D)	289	268	92.7
Low Mach (H)	578	426	73.7
Low Mach (D)	<u>578</u>	<u>374</u>	64.7
	2,889**	1,927	

\*(H) - Honest; (D) Deceptive

\*\*One judgment was omitted by an observer which accounts for the total judgments not totaling 2,890.

A flow-analysis chart of correct judgments is given in Table 10. These data indicate a statistical difference in the level of detection

Table 10  
PERCENT OF CORRECT RESPONSES BY MACH LEVEL



between low and high Machs in deceptive situations. Specifically, low Machs were detected accurately in deceptive conversations 64.70% of the time, while high Machs were detected in deceptive conversations only 43.9%. However, the contrast between low and high Machs in honest situations was not contrasted as much, with accuracy rates of 73.70% and 62.95%, respectively.

Some additional factors could have had an impact on the ability of persons to detect deception. Therefore, this study also examined the variables of sex, race, observer perception, age and how they related to the ability of persons to detect deception.

The percentages of correct responses by sex of the observer are reported in Table 11. To determine if there were any correlation between the sexes of the observers and observer accuracy, a rank-order correlation was done. The high positive correlation ( $\text{Rho} = +.99$ ) indicated that a high similarity existed between men and women in detecting deception. In other words, the sex of the observer was not a factor in the accuracy rate of observers in detecting deception in this experiment.

The ability of persons to detect deception by race also was investigated. The percentages of accuracy rates by racial composition of observers are reported in Table 12. A rank-order correlation indicated a high positive correlation ( $\text{Rho} = +.80$ ) between the races (black and white) to detect deception. Black observers tended to have a higher accuracy rate in detecting deception, but a  $z$ -test indicated significance in only one treatment. This may tend to suggest that black observers may

Table 11  
PERCENT OF CORRECT RESPONSES BY SEX

Treatment Stimuli Presented	Male (N=123)	Female (N=166)
T <sub>1</sub> - Low Mach, Viner Deceptive	74.0	77.1
T <sub>2</sub> - Low Mach, Smith Honest	92.7	96.4
T <sub>3</sub> - High Mach, Grych Deceptive	54.5	36.1
T <sub>4</sub> - High Mach, Barden Deceptive	44.7	42.8
T <sub>5</sub> - Low Mach, Viner Honest	59.3	47.6
T <sub>6</sub> - Neutral Mach, Toner Deceptive	92.7	92.8
T <sub>7</sub> - High Mach, Barden Honest	65.9	53.6
T <sub>8</sub> - Neutral Mach, Toner Honest	85.4	82.5
T <sub>9</sub> - High Mach, Grych Honest	68.3	66.3
T <sub>10</sub> - Low Mach, Smith Deceptive	52.8	54.2
Percent of Totals	69.03	64.94

Table 12  
PERCENT OF CORRECT RESPONSES BY RACE

Treatment Stimuli Presented	White (N=259)	Black (N=29)
T <sub>1</sub> - Low Mach, Viner Deceptive	74.1	89.7
T <sub>2</sub> - Low Mach, Smith Honest	95.0	93.1
T <sub>3</sub> - High Mach, Grych Deceptive	43.6	48.3
T <sub>4</sub> - High Mach, Barden Deceptive	40.9	65.5
T <sub>5</sub> - Low Mach, Viner Honest	52.1	55.2
T <sub>6</sub> - Neutral Mach, Toner Deceptive	93.1	89.7
T <sub>7</sub> - High Mach, Barden Honest	57.5	69.0
T <sub>8</sub> - Neutral Mach, Toner Honest	85.7	62.5
T <sub>9</sub> - High Mach, Grych Honest	66.8	69.0
T <sub>10</sub> - Low Mach, Smith Deceptive	51.4	72.4
<hr/>		
Percent of Totals	66.02	71.44

be somewhat more accurate observers than white observers.

As stated, the observer's perception of the issues being discussed in the experimental deceptive or honest communicative exchange could conceivably effect a person's ability to detect deception. The experimental design of this study allowed for the measurement of this potential variable and also allowed for a method to indicate a difference in the ability of persons to detect deception. The data in Table 13 show the responses of these subjects who perceived they would be biased in the judgment of deception because of their personal feelings about an issue and the responses of those subjects who did not perceive that they would become biased. The rank-order correlation test between these two groups revealed that a high positive correlation ( $\text{Rho} = +.86$ ) existed between the two groups in their ability to detect deception. This suggested that, at least within the scope of this experiment, bias did not affect detection rates rendered by observers.

Age of observers was investigated to determine if similarities would be present between age categories of observers. The correct responses by age of observers are reported in Table 14. A rank-order correlation between the two groups revealed a high positive correlation of  $+.89$ .

The results pertaining to the Machiavellian hypothesis indicated that independent variables such as age and sex did not directly correlate with the ability of the groups to detect deception. However, an analysis of the detection rate of specific Machiavellian deceivers, indicated that high Machiavellian people have the tendency to go undetected more often than low Mach people.

Table 13  
PERCENT OF CORRECT RESPONSES BY PERCEIVED BIAS

Treatment Stimuli Presented	Observer Biased (N=155)	Observer Not Biased (N=132)
T <sub>1</sub> - Low Mach, Viner Deceptive	94.2	81.1
T <sub>2</sub> - Low Mach, Smith Deceptive	94.2	95.2
T <sub>3</sub> - High Mach, Grych Deceptive	45.2	42.4
T <sub>4</sub> - High Mach, Barden Deceptive	41.3	41.3
T <sub>5</sub> - Low Mach, Viner Honest	51.0	51.0
T <sub>6</sub> - Neutral Mach, Toner Deceptive	92.9	92.9
T <sub>7</sub> - High Mach, Barden Honest	56.1	56.1
T <sub>8</sub> - Neutral Mach, Toner Honest	87.1	87.1
T <sub>9</sub> - High Mach, Grych Honest	69.7	69.7
T <sub>10</sub> - Low Mach, Smith Deceptive	51.0	51.0
<hr/>		
Percent of Totals	68.27	67.35

Table 14  
PERCENT OF CORRECT RESPONSES BY AGE

Treatment Stimuli Presented	18 to 21 (N=228)	Over 22 (N=59)
T <sub>1</sub> - Low Mach, Viner Deceptive	76.8	68.4
T <sub>2</sub> - Low Mach, Smith Honest	95.6	93.1
T <sub>3</sub> - High Mach, Grych Deceptive	42.5	37.9
T <sub>4</sub> - High Mach, Barden Deceptive	39.5	48.9
T <sub>5</sub> - Low Mach, Viner Honest	53.5	46.0
T <sub>6</sub> - Neutral Mach, Toner Deceptive	93.9	91.4
T <sub>7</sub> - High Mach, Barden Honest	52.9	59.9
T <sub>8</sub> - Neutral Mach, Toner Honest	86.8	68.8
T <sub>9</sub> - High Mach, Grych Honest	66.2	73.5
T <sub>10</sub> - Low Mach, Smith Deceptive	53.9	53.3
<hr/>		
Percent of Totals	66.16	64.12

In the next chapter a summary and discussion of the general findings will be presented.

## Chapter V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The results of this study revealed that no major or significant differences are present between the performance of trained and untrained observers in detecting deception. Moreover, the results indicated that those persons who possessed Machiavellian characteristics were somewhat better deceivers than were those persons low in such traits.

An investigation of research pertaining to deceptive communications suggested several previously unanswered questions about the psychological differences of deceivers. Several more questions were posed regarding the ability of various persons to detect deception. Therefore, this thesis was aimed at providing some insights about deception.

#### Summary

An experiment was devised to: a) examine the Machiavellian traits of deceivers and to determine if significant differences would be found in the rates at which deceivers, who possessed varying levels of such traits, would be accurately judged in deceptive communications; and b) determine if previous or immediate training before evaluations would increase detection rates in which observers evaluated multiple channels for clues to deception.

The experimental design used to investigate these questions

encompassed three major steps. First, a test designed to measure Machiavellian traits was administered randomly to persons selected as potential deceivers (potential confederates in this study). Subsequently, the test results were evaluated and five persons were chosen as deceivers based upon their scores. Groupings, based on scores, allowed for three Machiavellian categories; high Mach, neutral Mach, and low Mach.

Second a videotape stimulus was prepared and presented to observers that showed two high Mach persons, two low Mach persons, and one neutral Mach person in one deceptive situation and in one honest situation.

Third, the videotape stimulus was presented to journalism students (control group, N=122) and to non-journalism students (treatment group, N=151) and to polygraph examiners (N=16) for evaluation.

The experimental design was based upon previous research that revealed that many deception studies had evaluated only one communication channel (speech, facial expressions or body language). Therefore, it was hypothesized that a higher detection rate would be produced by allowing observers to render an evaluation by judging a combination of these channels.

The study also attempted to answer various questions regarding training that people receive. For example, are polygraph examiners and journalism students more proficient at detecting deception, and is this attributable to the training they receive?

Previous research had indicated that observers can only detect

deception at a chance level or slightly above it. However, in this study, observers rendered an overall accuracy rate of 68.0%.

The analysis of the data collected in this study provided other answers to questions and are the basis on which the hypotheses were rejected or accepted.

Although observers detected deception above the chance level, it was evident from the findings that there were no major differences in the ability of either group to detect deception. In other words, although the different groups were adept at detecting deception, there were no major differences in their overall performances. Based on the noted similarities among the groups to detect deception, the first null hypothesis of this study was accepted.

Answers also were sought to various questions pertaining to the different psychological traits of deceivers and how these traits could be used to determine some characteristics of good and bad liars. Specifically, based on previous research, some merit was given to the idea that low Mach persons would emit more clues in deceptive situations than would high Mach persons. Consequently, it was hypothesized that persons who possessed high Machiavellian traits would be detected less often in evaluations than would persons with low Mach traits.

The analysis of the data suggested that low Mach persons were detected in deceptive situations more often than were high Machiavellian types. Therefore, the second null hypothesis was rejected.

These results are in contrast to findings presented in previous

deception studies. For example, research by Knapp and Comadena,<sup>1</sup> Bennett,<sup>2</sup> et. al., suggested that training increased the ability of persons to detect deception. However, this study indicated that training produced no major differences among observer groups who had been exposed to training before rendering evaluations.

Similarly, the study produced results contrary to previous research by Knapp, Hart, and Dennis,<sup>3</sup> who suggested that no differences existed between high and low Machiavellian types. Specifically, this study suggested that high Mach deceivers were detected less often in deceptive exchanges than were low Mach deceivers.

An overall review of this study was made to determine possible explanation of the differences reported in this study and the contrasting results reported in other studies. However, no immediate explanations could be found. Speculation suggested that the reason the null hypothesis pertaining to training was accepted could have been attributed to the amount of information furnished to observers. Specifically, the amount of verbal and nonverbal communication furnished by deceivers to observers in this study was more detailed than in previous studies.

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<sup>1</sup>Mark L. Knapp and Mark E. Comadena, "Telling It Like It Isn't: A Review of Theory and Research on Deceptive Communications," Human Communication Research, Vol 5, No. 3, Spring 1979, pp. 270-284.

<sup>2</sup>Roger E. Bennett, "A Study of Micromomentary Facial Expressions to Investigate the Detection of Deception in the Journalistic Interview," unpublished doctoral dissertation, University of Texas at Austin, 1978.

<sup>3</sup>Mark L. Knapp, Roderick P. Hart, and Harry S. Dennis, "An Exploration of Deception as A Communication Construct," unpublished manuscript, Purdue University, 1975.

This explanation may have merit because when deceivers are required to hide their true feelings for long periods of time, the chance of them unconsciously emitting clues to deception is increased.

Another explanation for the overall above chance evaluations is attributed to allowing observers to evaluate all possible clues to deception through the multiple channels of the deceivers. This may suggest that when both trained and untrained observers are allowed to render evaluations of multiple channels, not only do trained observers perform proficiently, but naive or untrained observers are also adept at detecting deception.

#### Conclusions

The findings generated from analysis of the data collected suggest:

- a) high Machavellian deceivers are better deceivers than are low Mach deceivers; but the evaluations of low Machavellian deceivers in this study was somewhat skewed. This may suggest that both good and bad liars may be found within this group;
- b) training did not increase judgmental accuracy rates in attributions of deception - students not trained in detecting deception actually rendered higher percentage rates than did journalism students;
- c) polygraph examiners, who in previous research had been able to detect deception proficiently solely by judging nonverbal behavior, had a higher accuracy rate than other groups of observers.

Besides the major tenets of this study which have been discussed, an effort also was made to determine additional factors related to training

and Machiavellianism that might account for various accuracy rates in detecting deception. Specifically, these were made with the following categories of observers: race, sex, age, student classification, student major, bias/no bias towards issues being discussed, and observer knowledge/not knowledgeable about the theory of detecting deception by evaluating nonverbal behavior. No significant correlation was found in the ability of observers in the above categories to detect deception.

#### Recommendations for Additional Research

Although this experiment demonstrated high Mach deceivers were detected less often than were low Machs, caution is urged in generalizing that all high Mach level persons would perform similarly under relative conditions. However, this research demonstrated that this area offers promise for additional research. A study with a numerically superior sample and with persons possessing varying levels of Machiavellian characteristics may tend to re-enforce the contention that high Machs are better liars. Additionally, it may help to explain some of the paradoxes evidenced in the low category.

Clearly, this research has shown that some people are better deceivers than others. This suggests that all previous reports of detection rates may not be attributed to the ability of observers to detect deception, but also predicated on the ability of deceivers to lie in a convincing manner.

Although in general all students who participated in this research were very responsive, it was noted that on occasion during presentation

of the videotape stimulus, some students became inattentive. Invariably, this resulted in their eyes drifting from the playback machine. Consequently, this resulted either in the student rendering a premature evaluation or not processing all clues to deception. Therefore, future research should include provisions to stimulate observer motivation and participation. This could be done by either introducing provisions for reward or adverse consequences based on the student's performance in evaluating deception.

Additionally, this may have been averted by reducing the length of the treatment stimulus.

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**APPENDIX A**  
**PERSONALITY TESTS**

## PERSONALITY INVENTORY PART I

The following statements are to be judged by you and rated on a seven point scale. The scale runs:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree
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You will be given the scale at the start of the questionnaire and then you will be given seven marks to substitute for constantly writing the same words. If you are highly opposed to a statement, then you would mark Strongly Disagree. The reverse would be true as well. If you really agree with a statement, then you would mark Strongly Agree.

1. The best way to handle people is to tell them what they want to hear.

\_\_\_\_\_

2. When you ask someone to do something for you, it is best to give the real reasons for wanting it rather than giving reasons which might carry more weight.

\_\_\_\_\_

3. Anyone who completely trusts anyone else is asking for trouble.

\_\_\_\_\_

4. Honesty is the best policy in all cases.

\_\_\_\_\_

5. It is hard to get ahead without cutting corners here and there.

\_\_\_\_\_

6. It is safest to assume that all people have a vicious streak and it will come out when they are given a chance.

\_\_\_\_\_

7. Never tell anyone the real reason you did something unless it is useful to do so.

\_\_\_\_\_

8. One should take action only when sure it is morally right.

\_\_\_\_\_

9. It is wise to flatter important people.

\_\_\_\_\_

10. All in all, it is better to be humble and honest than important and dishonest.
11. Barnum was very wrong when he said there's a sucker born every minute.
12. People suffering from incurable diseases should have the choice of being put painlessly to death.
13. It is possible to be good in all respects.
14. Most people are basically good and kind.
15. There is no excuse for lying to someone else.
16. Most men forget more easily the death of their fathers than the loss of their property.
17. Most people who get ahead in the world lead clean, moral lives.
18. Generally speaking, men won't work hard unless they're forced to.
19. The biggest difference between most criminals and other people is that criminals are stupid enough to get caught.
20. Most men are brave.

## PERSONALITY INVENTORY PART II

In the following questionnaire you will be asked to answer a list of questions concerning your attitudes toward certain activities. If you believe the question describes you, circle "yes." If the reverse is the case, circle "no."

- |  |     |    |
|--|-----|----|
| 1. Do you sometimes say the first thing that comes into your mind?   | yes | no |
| 2. Can you usually solve a problem better by studying it alone than by discussing it with others?                    | yes | no |
| 3. In a group, do you hate having to introduce people to each other?   | yes | no |
| 4. Do you very much enjoy good food?   | yes | no |
| 5. Are you a person who is not much given to cracking jokes and telling funny stories to your friends?               | yes | no |
| 6. Do you often crave excitement?  | yes | no |
| 7. Do you drink alcohol only in moderation usually?  | yes | no |
| 8. Do you enjoy practical jokes?   | yes | no |
| 9. Would you rate yourself as an impulsive individual?   | yes | no |
| 10. When you are drawn into a quarrel do you prefer to "have it out" to be silent hoping things will blow over?      | yes | no |
| 11. Do you mind selling things, or soliciting funds for a cause in which you are interested?                         | yes | no |
| 12. Do you like to be in a situation with plenty of excitement and bustle?   | yes | no |
| 13. If you want to learn about something would you rather do it by reading a book on the subject than by discussion? | yes | no |
| 14. Do you often act on the spur of the moment without stopping to think?  | yes | no |

- |   |     |    |
|---|-----|----|
| 15. Are you reserved and distant to friends?  | yes | no |
| 16. When the odds are against your succeeding in some activity, do you think it worth while to take a chance? | yes | no |
| 17. Are you ordinarily a carefree individual?   | yes | no |
| 18. Can you easily get some life into a dull party?   | yes | no |
| 19. Do you enjoy working alone?   | yes | no |
| 20. Do you enjoy opportunities for conversation so that you rarely miss a chance talking to a stranger?       | yes | no |
| 21. Do you have difficulty falling asleep at bedtime?   | yes | no |
| 22. Are you inclined to stop and think things over before acting?   | yes | no |
| 23. Do you tend to be slow and deliberate in your movements?  | yes | no |
| 24. Do you often need cheerful, sympathetic company to "cheer you up?"  | yes | no |
| 25. Do you feel it essential to plan ahead carefully before beginning any undertaking?                        | yes | no |
| 26. On the whole, do you prefer the company of books to people?   | yes | no |
| 27. If you are annoyed by something, do you find it absolutely necessary to let off steam?                    | yes | no |
| 28. Is your motto to take matters with proper seriousness rather than to "laugh and be merry?"                | yes | no |
| 29. Do you tend to be an over cautious pessimist?   | yes | no |
| 30. Do you often have a restless feeling that you want something but do not know what?                        | yes | no |
| 31. Would you describe yourself as an easy going person not concerned to be precise?                          | yes | no |
| 32. Do you tend towards a rather reckless optimism?   | yes | no |

- |   |     |    |
|---|-----|----|
| 33. Would you do almost anything on a dare?   | yes | no |
| 34. When people shout at you, do you shout back?  | yes | no |
| 35. Other things being equal, would you prefer the job of a farmer to a life of an insurance salesman?  | yes | no |
| 36. Are you given to acting on impulses of the moment which later land you in difficulties?   | yes | no |
| 37. Would you rather spend an evening by yourself than go to a dull party?  | yes | no |
| 38. Does your natural reserve generally stand in the way when you want to start a conversation with an attractive stranger of the opposite sex? | yes | no |
| 39. Are you happiest when you get involved in some project that calls for rapid action?   | yes | no |
| 40. Do you sometimes feel happy, sometime depressed, without any apparent reason?   | yes | no |
| 41. Do you usually take the initiative in making new friends?   | yes | no |
| 42. Would you rate yourself as a lively individual?   | yes | no |
| 43. Would you be very unhappy if you were prevented from making numerous social contacts?   | yes | no |
| 44. Are you inclined to be moody?   | yes | no |
| 45. Do you have frequent ups and downs in moods, with or without apparent cause   | yes | no |
| 46. Do you prefer action to planning action?  | yes | no |
| 47. Are you inclined to keep in the background on social occasions?   | yes | no |
| 48. Is it difficult to "lose yourself" even at a lively party?  | yes | no |
| 49. Do you ever feel just miserable for no good reason at all?  | yes | no |
| 50. Do you often find that you have made up your mind too late?   | yes | no |

- |  |     |    |
|--|-----|----|
| 51. Do you like to mix socially with people?   | yes | no |
| 52. Have you often lost sleep over your worries?                                     | yes | no |
| 53. Are you inclined to limit your acquaintances to a select few?                    | yes | no |
| 54. Are you often troubled about feelings of guilt?                                  | yes | no |
| 55. Are your feelings rather easily hurt?  | yes | no |
| 56. Do you like to have many social engagements?                                     | yes | no |
| 57. Are you inclined to be shy in the presence of the opposite sex?                  | yes | no |
| 58. Do you nearly always have a "ready remark" for comments directed to you?         | yes | no |
| 59. Would you rate yourself as a happy-go-lucky individual?                          | yes | no |
| 60. Have you often felt listless and tired for no good reason?                       | yes | no |
| 61. Are you inclined to keep quiet when out in a social group?                       | yes | no |
| 62. Can you usually let yourself go and have a hilariously good time at a fun party? | yes | no |
| 63. Do you like work that requires considerable attention?                           | yes | no |
| 64. Do other people regard you as a lively individual?                               | yes | no |
| 65. Do you often feel disgruntled?   | yes | no |
| 66. Do you like to play pranks on others?  | yes | no |

**APPENDIX B**  
**SURVEY OF CONFEDERATES**

## STUDENT SURVEY

INSTRUCTIONS: Read each statement very carefully and then record the degree in which you support the statement based upon a scale of one to seven. Seven (7) means you STRONGLY AGREE with the statement, six (6) means you AGREE with the statement, five (5) means you SOMEWHAT AGREE with the statement, four (4) means you are NEUTRAL toward the statement, three (3) means you SOMEWHAT DISAGREE with the statement, two (2) means you DISAGREE with the statement, and one (1) means you STRONGLY DISAGREE with the statement.

<u>STATEMENT</u>	<u>RATING</u>						
	7 SA	6 A	5 SA	4 N	3 SD	2 D	1 SD
1. President Carter was absolutely correct when he called for draft registration to be reinstated.	7	6	5	4	3	2	1
2. The United States should continue to increase defense spending in order to deter Soviet expansionism.	7	6	5	4	3	2	1
3. Independent Presidential Candidate John B. Anderson should be placed on the ballots in each state.	7	6	5	4	3	2	1
4. The state of the American economy is the major problem of Americans today.	7	6	5	4	3	2	1

Student Survey  
p. 2

<u>STATEMENT</u>	<u>RATING</u>						
	7 SA	6 A	5 SA	4 N	3 SD	2 D	1 SD
5. Teachers should immediately be given a cost of living increase.	7	6	5	4	3	2	1
6. Although nuclear energy involves some risks, its use is essential for the United States in eventually becoming "energy independent."	7	6	5	4	3	2	1
7. The Vietnam War was a noble cause.	7	6	5	4	3	2	1
8. Police departments should be required to examine their internal policies on the use of force because of numerous complaints and allegations of excessive use of force.	7	6	5	4	3	2	1
9. In the last two years, the Supreme Court has rendered decisions that support the constitutional right to a free press.	7	6	5	4	3	2	1

Student Survey  
p. 3

<u>STATEMENT</u>	<u>RATING</u>						
	7 SA	6 A	5 SA	4 N	3 SD	2 D	1 SD
10. Most voters who don't vote, don't vote because of apathy on their part.	7	6	5	4	3	2	1
11. The issues of separation of the church and state (for example, the controversy over whether prayer should be allowed in school) should <u>not</u> be discussed in the presidential election campaign.	7	6	5	4	3	2	1
12. The Ku Klux Klan is a major issue in the presidential election.	7	6	5	4	3	2	1

**APPENDIX C**  
**QUESTIONS ON ISSUES**

1. In his state of the union message, President Carter called for the reinstitution of draft registration. Subsequently, eighteen and nineteen year-old males were required to register for the draft. Do you think President Carter was absolutely correct in calling for draft registration to be reinstated?
2. The United States will increase spending on national defense this year by several billion dollars. Do you feel the United States should continue to increase spending on national defense in order to deter Soviet expansionism?
3. John Anderson, who is an independent candidate for president, experienced difficulty in being placed on some state ballots. Do you think he should be allowed to enter his name on presidential ballots in all states?
4. Inflation reached an annual percentage rate of 18% at one point this year. Also, the United States has experienced a recession this year. Do you think the state of the American economy is the major problem facing the American people today?
5. Some teachers have been going on strike for higher wages. Do you think teachers should be given an immediate pay raise?
6. The Three-Mile Island accident last year has created a controversy over the use of nuclear energy. Do you agree or disagree with the statement that "although nuclear energy involves some risks, its use is essential for the United States to eventually become energy independent?"
7. Republican presidential nominee Ronald Reagan recently said that the Vietnam War was a noble cause. Do you think the Vietnam War was a noble cause?
8. This past summer, there were several accounts whereby citizens alleged illegal use of force on the part of police officers. Do you think that police officers should be required to examine their internal policies on the use of force because of these allegations?
9. In the last two years, the United States Supreme Court has been volatile in its decisions regarding the constitutional right to a free press. Do you think the Supreme Court had rendered decisions that support the right to a free press?
10. In the last presidential election, slightly more than 50% of the registered voters actually voted. Do you think voters, who don't vote, don't vote because of apathy?

11. The issue of separation of the church and state has become a major issue in this year's presidential campaigns. Do you think this issue should be discussed in presidential campaigns?

12. Republican presidential nominee Ronald Reagan recently charged President Carter with opening his campaign for re-election in the town where the Ku Klux Klan was founded. Do you think the Ku Klux Klan is a major issue in the presidential election?

**APPENDIX D**  
**RESEARCH QUESTIONNAIRE**

## RESEARCH QUESTIONNAIRE - DECEPTIVE COMMUNICATIONS

NOTE: YOU ARE NOT BEING ASKED TO INDICATE YOUR IDENTITY ON THIS QUESTIONNAIRE. YOUR RESPONSES ARE FOR RESEARCH PURPOSES ONLY.

**BASIC INSTRUCTIONS:** This questionnaire has been designed to measure your ability to detect deception in an interview situation, based on your evaluation of verbal and nonverbal communication. In a few minutes, you will watch a series of videotaped situations in which you will be asked to offer judgments as to the speaker's veracity. However, first it is necessary to determine your feelings toward the issues as well as your feelings toward the persons who will be discussing the issues. This is important because it may assist in explaining the accuracy level at which you detect deception. This questionnaire will be administered to students at the University of Mississippi and to polygraph examiners. Therefore, some questions, as well as demographic information requested, will not apply to all respondents. Consequently, please pay particular attention to all instructions to insure that you are completing the questions pertaining to your group. All instructions are in capital letters to assist you with this.

## PART I

**INSTRUCTIONS:** Please read each statement very carefully and then record the degree in which you support the statement, based on a scale of one to seven. Seven (7) means you STRONGLY AGREE with the statement, six (6) means you AGREE with the statement, five (5) means you SOMEWHAT AGREE with the statement, four (4) means you are NEUTRAL toward the statement, three (3) means you SOMEWHAT DISAGREE with the statement, two (2) means you DISAGREE with the statement, and one (1) means you STRONGLY DISAGREE with the statement.

<u>STATEMENT</u>	<u>RATING</u>						
	7 SA	6 A	5 SA	4 N	3 SD	2 D	1 SD
1. The United States should continue to increase defense spending in order to deter Soviet expansionism.	7	6	5	4	3	2	1
2. The state of the American economy is the major problem facing Americans today.	7	6	5	4	3	2	1

<u>STATEMENT</u>	<u>RATING</u>						
	7 SA	6 A	5 SA	4 N	3 SD	2 D	1 SD
3. The Vietnam War was a noble cause.	7	6	5	4	3	2	1
4. Police departments should be required to examine their internal policies on the use of force because of numerous complaints and allegations of excessive use of force.	7	6	5	4	3	2	1
5. The issue of the separation of the church and state (for example, the controversy over whether prayer should be allowed in school) should not be discussed in the presidential election campaign.	7	6	5	4	3	2	1
6. Do you feel such strong convictions about any of the above statements (either for or against) that would cause you to question a person's credibility if he made a statement regarding that issue that you did not agree with?							

Yes       No (IF NO, SKIP QUESTION 7)

7. What issue(s) do you feel such strong convictions for/against that would cause you to question a person's credibility if he made a statement regarding that issue that you did not agree with?

- defense spending
- state of the economy
- Vietnam War
- use of force by police officers
- separation of the church and state

POLYGRAPH EXAMINERS GO TO QUESTION 23, PAGE D-4

UNIVERSITY OF MISSISSIPPI STUDENTS PLEASE ANSWER questions 8-22

→8. Do you know Dani Smith, who is an instructor in the sociology department at Ole Miss?

Yes

No (GO TO QUESTION 11, THIS PAGE)

9. How well do you know her?

       Real Well

       Fairly Well

       Not Very Well

10. How do you perceive her credibility?

       Very Credible

       Fairly Well Credible

       Not Very Credible

       Not Credible

       Don't Know

11. Do you know Mark Barden, who is a graduate student in the journalism department at Ole Miss?

       Yes

       No (GO TO QUESTION 14, NEXT PAGE) →

12. How well do you know him?

       Real Well

       Fairly Well

       Not Very Well

13. How do you perceive his credibility?

       Very Credible

       Fairly Well Credible

       Not Very Credible

       Not Credible

       Don't Know

14. Do you know Tim Viner, who is a graduate student in the journalism department at Ole Miss?

Yes

No (GO TO QUESTION 17, THIS PAGE) ←

15. How well do you know him?

Real Well

Fairly Well

Not Very Well

16. How do you perceive his credibility?

Very Credible

Fairly Well Credible

Not Very Credible

Not Credible

Don't Know

→ 17. Do you know Sandy Grych, who is a graduate student in the journalism department at Ole Miss?

Yes

No (IF NO, GO TO QUESTION 20, NEXT PAGE) →

18. How well do you know her?

Real Well

Fairly Well

Not Very Well

19. How do you perceive her credibility?

Very Credible

Fairly Well Credible

Not Very Credible

Not Credible

Don't Know

20. Do you know Frank Toner, who is a part-time graduate student in the journalism department at Ole Miss?

Yes

  No (GO TO QUESTION 23, THIS PAGE)

21. How well do you know him?

Real Well

Fairly Well

Not Very Well

22. How do you perceive his credibility?

Very Credible

Fairly Well Credible

Not Very Credible

Not Credible

Don't Know

## PART II

THE PERSONAL INFORMATION REQUESTED IN THIS PART OF THE QUESTIONNAIRE IS FOR STATISTICAL PURPOSES. AGAIN, PLEASE NOTE THAT THIS QUESTIONNAIRE IS ANONYMOUS.

→ 23. What is your age? \_\_\_\_\_

24. What is your sex?  Male  Female

25. What is your race?  White  Black  Other

26. Have you previously heard of the concept of, or studies in, detecting deception through evaluation of nonverbal communication?

Yes

No

27. Have you ever had classes or special training that you feel would assist you in detecting deception by evaluating the nonverbal communication of a person?

Yes       No (IF NO, SKIP QUESTION 28)

28. Specifically, what training or classes have you had that you think would assist you in detecting deception through evaluation of nonverbal communication?

POLYGRAPH EXAMINERS GO TO QUESTION 34, THIS PAGE

UNIVERSITY OF MISSISSIPPI STUDENTS PLEASE ANSWER QUESTIONS 29-33

29. What is your student classification at Ole Miss?

Freshman       Senior  
 Sophomore       Graduate  
 Junior       Other

30. What is your major? \_\_\_\_\_

31. What is your minor? \_\_\_\_\_

32. What is your overall grade point average since you have been in college?

Under 1.0       3.0 to 3.5  
 1.0 to 1.9       Over 3.5  
 2.0 to 2.9       Don't Know

33. What was your exact grade point average the last full semester you were enrolled in college?

UNIVERSITY OF MISSISSIPPI STUDENTS PLEASE STOP AND WAIT FOR VERBAL INSTRUCTIONS BEFORE PROCEEDING.

→ 34. Have you ever worked in law enforcement?

Yes

No (GO TO QUESTION 38, NEXT PAGE) →

35. How many years have you worked in law enforcement? \_\_\_\_\_

36. Did you primarily work in a direct enforcement position or in a management capacity?

Management

Direct Enforcement

37. What is the highest level of training you have had in law enforcement?

On-the-job Training

Formal Training Academy

Advanced Training Academy or Program

Other, explain \_\_\_\_\_

38. What is your education level?

Non-High School Graduate

High School Graduate

Attended College, No Degree (Indicate your classification when you last attended college) \_\_\_\_\_

Associate Degree

Undergraduate Degree

Graduate Degree

Other, explain \_\_\_\_\_

39. Have you previously had experience in the polygraph technique?

Yes

No

POLYGRAPH EXAMINERS PLEASE STOP AND WAIT FOR VERBAL INSTRUCTIONS BEFORE PROCEEDING

## PART III

INSTRUCTIONS: Please do not mark on this section of the questionnaire until you are given verbal instructions to do so.

40. Situation 1:	HONEST	DECEPTIVE
41. Situation 2:	HONEST	DECEPTIVE
42. Situation 3:	HONEST	DECEPTIVE
43. Situation 4:	HONEST	DECEPTIVE
44. Situation 5:	HONEST	DECEPTIVE
45. Situation 6:	HONEST	DECEPTIVE
46. Situation 7:	HONEST	DECEPTIVE
47. Situation 8:	HONEST	DECEPTIVE
48. Situation 9:	HONEST	DECEPTIVE
49. Situation 10:	HONEST	DECEPTIVE

**APPENDIX E**  
**TRAINING AND INSTRUCTIONS**

You will be taking part in an experiment which will require you to watch a videotape presentation. The videotape presentation will consist of ten segments, with each segment ranging about 60 seconds in duration. The persons you will see are graduate students enrolled at the University of Mississippi.

The videotape you will view is a mixture of these persons telling lies and telling the truth about a subject in which they possess strong convictions. You must decide, as part of this experiment, when these persons are lying and telling the truth.

You should make your decision based upon the persons verbal comments as well as their nonverbal communication. Research has indicated that when a person is lying, he often gestures more, sometimes assumes a tight body position and may trip over his words, or have to pause to search for words. Nonverbal clues to deception may occur either in the person's facial expressions or movement of other parts of the body, such as arms and legs. Additionally, research has indicated that the voice may give away clues to deception. Specifically, it has been determined that pitch is often higher in deceptive communications.

During the production of this videotape, the persons who volunteered to participate in this experiment were asked to express their true beliefs about a subject and then were asked to lie about their true feelings on another subject. Do not concern yourself with trying to arrange your responses in any certain sequence. You should view the single segment and render a judgment based upon your evaluation of that one particular situation.

You will be allowed to view each segment only once, and the screen on the playback machine will go blank for 10 seconds to allow for you to record your response on the questionnaire. If you think the person is being truthful, circle HONEST whereby it corresponds with the situation that has been played on the machine and the question presented on your answer sheet. If you think the person is lying, circle DECEPTIVE whereby it corresponds with the situation that has been played on the machine and the question presented on your answer sheet.

Are there any questions?

**APPENDIX F**  
**PERCENT OF CORRECT RESPONSES BY MAJOR**

## PERCENT OF CORRECT RESPONSES BY MAJOR

Treatment Stimuli Presented	JOUR (N=89)	RAD/TV (N=32)	LIB ARTS (N=40)	BUSINESS (N=20)
T <sub>1</sub> - Low Mach, Viner Deceptive	67.4	75.0	75.0	85.0
T <sub>2</sub> - Low Mach, Smith Honest	92.1	96.9	90.0	100.0
T <sub>3</sub> - High Mach, Grych Deceptive	34.8	21.9	65.0	55.0
T <sub>4</sub> - High Mach, Barden Deceptive	32.6	43.6	37.5	40.0
T <sub>5</sub> - Low Mach, Viner Honest	43.8	53.1	57.5	50.0
T <sub>6</sub> - Neutral Mach, Toner Deceptive	94.4	84.4	87.5	95.0
T <sub>7</sub> - High Mach, Barden Honest	39.3	62.5	67.5	60.0
T <sub>8</sub> - Neutral Mach, Toner Honest	82.0	78.1	85.0	90.0
T <sub>9</sub> - High Mach, Grych Honest	61.8	50.0	72.5	70.0
T <sub>10</sub> - Low Mach, Smith Deceptive	57.1	43.8	72.5	40.0
<hr/>				
Percent of Totals	60.53	60.93	71.00	68.50

## PERCENT OF CORRECT RESPONSES BY MAJOR

Treatment Stimuli Presented	Education (N=7)	Criminology (N=13)	Other (N=57)
T <sub>1</sub> - Low Mach, Viner Deceptive	100.0	76.9	80.7
T <sub>2</sub> - Low Mach, Smith Honest	100.0	100.0	96.5
T <sub>3</sub> - High Mach, Grych Deceptive	28.6	46.2	45.6
T <sub>4</sub> - High Mach, Barden Deceptive	28.6	69.2	54.4
T <sub>5</sub> - Low Mach, Viner Honest	71.4	38.5	66.7
T <sub>6</sub> - Neutral Mach, Toner Deceptive	100.0	100.0	96.5
T <sub>7</sub> - High Mach, Barden Honest	71.5	93.3	70.2
T <sub>8</sub> - Neutral Mach, Toner Honest	87.5	100.0	82.5
T <sub>9</sub> - High Mach, Grych Honest	71.4	92.3	73.7
T <sub>10</sub> - Low Mach, Smith Deceptive	28.6	61.5	57.9
Percent of Totals	68.76	77.69	72.47

## BIOGRAPHICAL SKETCH OF THE AUTHOR

Charles David Childers was born in Ripley, Mississippi on January 22, 1951, the son of Charles Leroy and Virginia Bennett (deceased 1970) Childers. He was graduated from Falkner, Mississippi, High School in 1969 and attended Freed-Hardeman College in Henderson, Tennessee. At Freed-Hardeman College he was a "walk-on" member of the varsity basketball team and was subsequently awarded an athletic scholarship.

In 1972, he entered the United States Army and served as a military policeman and military police investigator in Europe and at Fort McPherson, Georgia. In 1975, he was commissioned a second lieutenant in the Military Police Corps of the United States Army after completing Officer Candidate School at Fort Benning, Georgia. Since receiving his commission, he has been assigned to Fort McPherson, Georgia and Fort McClellan, Alabama.

He has served in a variety of military positions, including:  
Commander, 525th Military Police Company, Fort McPherson, Georgia and  
Commander, Forces Command Honor Guard, Fort McPherson, Georgia.

His military awards include: the Meritorious Service Medal, Army Commendation Medal, Good Conduct Medal, National Defense Service Medal, Parachutist Badge, and German Marksmanship Award.

He is married to the former Karen Copen of Atlanta, Georgia and they have two sons: Mark Richard, born on October 20, 1971 and Matthew David, born on April 4, 1977.

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